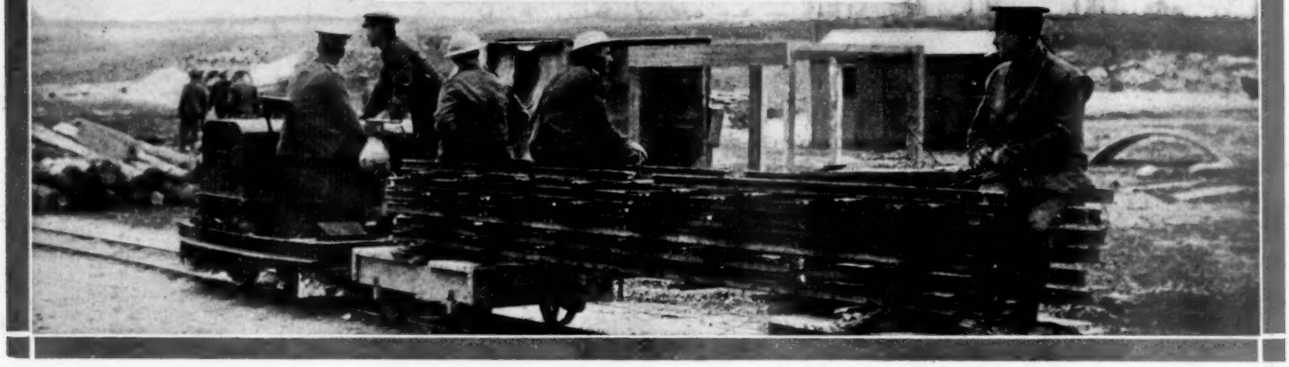
Railway Age

Vol. 64 February 8, 1918 No. 6



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EDWARD A. SIMMONS, *Pres.* L. B. SHERMAN, *Vice-Pres.* HENRY LEE, *Vice-Pres & Treas.* M. H. WIUM, *Secretary.*

CHICAGO: Transportation Building. **CLEVELAND:** Citizens Building. **WASHINGTON:** Home Life Building.

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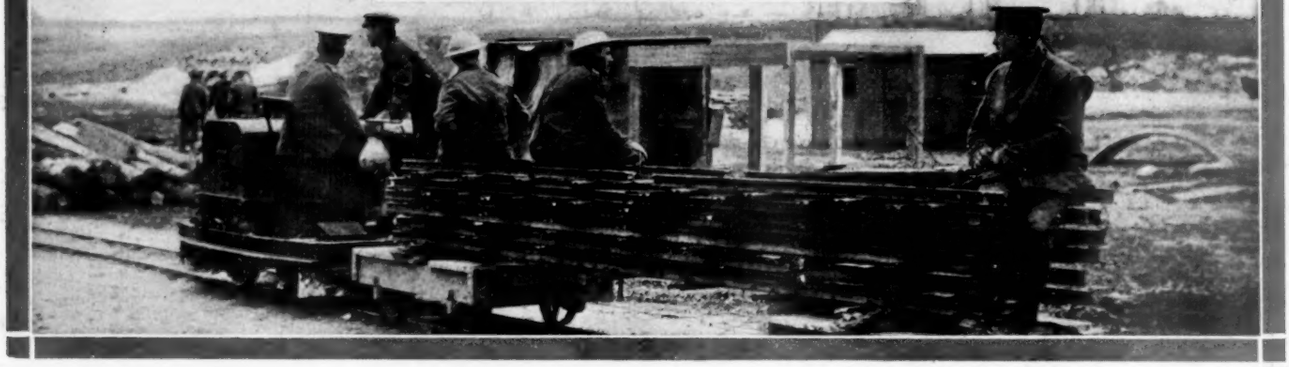

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EDITORIAL

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Mud-Slinging at the Railroads

By way of expressing their disappointment that the Railroad Wage Commission apparently does not intend to consider their "request" or "demand" or "proposition" for increased wages entirely as an ex parte proceeding, W. G. Lee, president of the Brotherhood of Railroad Trainmen, and A. B. Garretson, president of the Order of Railway Conductors, at the hearing Tuesday charged railroad officers with "laying down" and deliberate inefficiency in an effort to make a failure of government control of railroads and to increase the overtime payments to discredit the Adamson eight-hour law. It is easy to make such general charges unsubstantiated by any facts and they would not be taken seriously for a moment if it were not for the effect they may have on those who are as uninformed about the railway situation as they are about the character of the men who make such charges. If they were intended as a barrage fire to protect the charge being made by the brotherhoods on the Government's treasury they had an effect. They kept most of the newspapers from reporting the fact that Mr. Lee and Mr. Garretson are showing their patriotic desire to co-operate with the government by increasing the demands they had previously presented to the railroads by a new demand for time and one-half for overtime, just as it was predicted they would do when they withdrew a similar demand at the request of the President at the time of the eight-hour controversy. Without attributing to railroad officers any more than their fair share of patriotism it is perfectly evident that any effort on their part to discredit government control by any failure to do their best would be the most short-sighted kind of policy, sure to react on railroads themselves, and the Adamson law is not now an issue. Mr. Garretson said that employees are "not engaged in giving a demonstration of what a failure government operation is," but some of their leaders are giving demonstrations that loyal employees ought to resent and they doubtless will do so until the charges are either proved or retracted.

Order Cars Now for the Future

The opportunities of the railroads for getting good deliveries on new freight cars was called attention to in the January 4 issue of the *Railway Age*. During the past month no cars have been ordered by the railroads and of inquiries for about 2,500 cars only 1,125 have come from railroads. While at present every railroad man's attention is taken up with the severe congestion due to a lack of sufficient motive power, thought must be given to the car situation eight or ten months hence. There are about 2,600,000 frieght cars in service on the railroads today. Assuming 15 years to be the average life of a car, there will be required about 173,000 cars for replacements alone, to say nothing of increased business requirements. During the past 17 years, over which period records have been kept, the number of cars ordered amounted to 2,784,662 or 163,803 cars per year. During the past five years the average number ordered amounted to 117,242 or 46,561 less than the average. This shows that our railways have for five years been short of new cars. Something must be done, and be done quickly, to make up this deficit. The car builders were never in a better condition to supply equipment than at the present. At the first of the year there were about 40,000 cars on order for domestic use. Working at maximum capacity, this number should be completed within the next two or three weeks. Under ordinary conditions it takes about three months before deliveries are made after the order is placed. At present it might take longer, so that cars ordered now probably cannot be delivered before the early summer. If they are not ordered now and all roads delay taking action until summer, the demands will be greater than the car builders can meet. It is far better from a purely economic standpoint—and the economic situation is vital to the country at the present time—to place the orders now, so that the builders will be permitted to regulate their output and systematize their forces so that an even, efficient production can be made. The matter cannot safely be overlooked. The power situation bids fair to improve materially within the next three months because of new locomotives being received. If the railroads are not careful, a car shortage will be as serious next fall and winter as the locomotive shortage is today. Order the cars now and do not let it be said nine months hence that a lack of foresight precipitated a great car shortage.

Spain Has a Locomotive Shortage

A note in the *Railway Age* of January 4 announced that four Spanish railways, the Northern, The Madrid, Saragossa & Alicante; the Andalusian, and the Madrid-Cateres had joined in a venture to make locomotives. There is more behind this announcement than was at first apparent. These four companies will help raise about $5,000,000 for the extension of a large machine shop in Barcelona, "La Maquinista Terrestre y Maritima" to enable it to build locomotives now very badly needed in Spain. The Spanish railway situation is exceedingly bad. The locomotives and cars of many of the roads, and particularly those of the Northern Railway, were considerably damaged in the two recent severe strikes and ill-usage has further added to their deterioration. Materials for repairs are next to impossible to obtain; it has become exceedingly difficult to get good coal, and to cap the climax there is a much greater traffic to handle than usual. The last is the result of the withdrawal of coastwise shipping for other purposes and an increased traffic in Spanish mined coal. The difficulty of obtaining coal from England has made it necessary to rely on the inferior Spanish coal, but even that has not been sufficient, and there is now a severe coal shortage. None of the railways has a month's supply on hand, and shipping rates are so high that coal is to be obtained from England only at a price in Spain of no less than $85 a ton. The Madrid, Saragossa & Alicante, which owns its own mines, is unable to produce a sufficient supply and its average price for coal in 1917 approached $25 a ton. Naturally, passenger service has been reduced wherever possible, but that has not been sufficient. The new plant mentioned above is expected to be able to supply the entire demands of the Spanish railways. Some years ago the same interests embarked on a similar project but had completed only 15 locomotives—the only locomotives ever produced in Spain—when German competition put an end to further progress. In fact, the Northern and the Madrid, Saragossa & Alicante alone imported 615 German engines from 1910 to 1913 and German locomotives had control over the market. The progress of this new locomotive building venture

will be watched with interest in America. We, too, have essayed to sell locomotives in Spain and have received orders for 87 since the beginning of the war, the principal orders including 25 twelve-wheel locomotives for the Madrid, Saragossa & Alicante in 1915; 15 Mikados for the Northern Railway in 1916 and 40 Mikados also for the latter road in 1917. Spain has about 2,500 locomotives and 50,000 freight cars. American railway supply houses can undoubtedly look forward to doing a business in this market in the future, but they will not be able to make the most of their opportunities there until the shipping situation improves.

The Screw Spike Situation

THE PUBLICATIONS of the American Railway Engineering Association contain two very interesting and instructive articles on the use of screw spikes in track construction. In bulletin No. 175, dated March, 1915, G. J. Ray, chief engineer of the Delaware, Lackawanna & Western, described the experience of that road with screw spikes after observing the results with over 12,000,000 screw spikes in service for periods up to five years, and stated that "as a whole, the screw spike installation has proved very satisfactory, and no conditions have developed such as to cause any doubt about the ultimate success of the undertaking." In bulletin No. 200, dated October, 1917, and issued within the last month, W. C. Cushing, chief engineer maintenance of way of the Southwest System, Pennsylvania Lines, outlined the results of experiments which have been conducted by the Pennsylvania under the direction of a committee of the chief engineers of the constituent lines of the system. In this bulletin the committee reports that "screw spikes have no advantage over nail spikes."

This marked conflict in ideas regarding as important an item of track construction as screw spikes deserves careful consideration. In the first report the conclusions were drawn after extensive service with large numbers of spikes in tracks carrying a heavy traffic. The more recent report of the Pennsylvania is based on studies of limited installations, but it carries much weight because of the long established reputation of this road for the thoroughness of its tests.

Before undertaking to discuss the conflict in these conclusions, it is well to note the results which are being secured on the roads which are using screw spikes in the largest numbers. The Lackawanna is the largest user of screw spikes, having employed them exclusively on new construction as well as on maintenance work for several years and now has approximately 17,000,000 of them in service in connection with about 7,000,000 flat bottom tieplates. With three years additional service since the original report was written, no defects have come to light which would lead the officers of that road to change in any way the conclusions published in 1915. The New York, New Haven & Hartford started with an experimental mile of screw spike track in 1907, and has since extended the use of this fastening on the four and six-track main line between New York and New Haven until over 300 track miles are now laid with this form of construction, with tieplates and creosoted ties. A report from this road states that "so far the screw spikes have been entirely satisfactory." The Atchison, Topeka & Santa Fe is another road which has had an extensive mileage of screw spike track in service for periods up to ten years, and while the officers of this road do not feel that their use has progressed far enough to warrant a final conclusion, it is stated that up to the present time none of this track has developed the results shown by the Pennsylvania. The experience of these three roads, which have used screw spikes in the largest numbers, does not therefore bear out the conclusions reached by the Pennsylvania in its tests.

Railway engineers have had two objects in mind in considering screw spikes—their service as track fastenings, and their effect in reducing the destruction of the ties. While their function as track fastenings is of primary importance, their economy comes about primarily because of their protection of the ties from the destructive action of the ordinary cut or nail spikes. The Pennsylvania appears not to have considered this advantage of the screw spike as it confined its report almost entirely to the service secured as a track fastening in spite of the fact that it is the other object which has led to the introduction of the screw spike in most instances. The Santa Fe has been a pioneer in the use of screw spikes and in the treatment of ties in this country, and has a larger number of treated ties in the track than any other road. It has likewise given more careful study to the causes leading to the destruction of ties. In common with other roads it soon found that ties can be treated against decay to give them a life far beyond their ordinary mechanical life, which is limited by the deterioration about the rail seat caused by nail spikes and the cutting of the rail. The screw spike and the flat bottom tie plate of ample dimensions have been developed to arrest this deterioration and to give to the tie a mechanical life equal to its resistance to decay. By ignoring this condition, which led to the original introduction of the screw spike, it is not surprising that the Pennsylvania arrived at the conclusion presented in the recent report. In fact, it is doubtful if the screw spike would ever have received serious attention on any road if its efficiency as a track fastening was the only consideration involved.

We hold no brief for the screw spike, but we do not believe that it should be discarded on the strength of the tests made on the Pennsylvania which, while conducted with care, were limited in scope as compared with the extensive service which the screw spike has rendered on other roads. The continually increasing cost of ties makes necessary the adoption of all practical means for increasing their life, because of the reduction which can be effected in the outlay for ties, the duty of the railways to assist in conserving the supply of timber, and the saving in labor which results from less frequent tie renewals. The screw spike requires a more expensive form of track construction than the cut spike. For this reason, its use is probably limited at present to those lines of heavy traffic where the destruction of the track is the greatest and the cost of maintenance correspondingly heavy. It is entirely possible that the further development of track construction may lead to important modifications of the screw spike, or to its entire replacement with some more suitable device. At the present time, however, it possesses certain advantages which warrant serious consideration by railroads of the class just mentioned.

Making a Revolution While You Wait

DID ANY MAN ever completely change his mental attitude and the habits of a life-time on a day's notice? Books dealing with religious experience tell us of such cases. But they are very rare. Converts often revert to their original condition of weakness and sin, simply because habit in most adult folks is so strong that it is almost impossible to overcome it.

All the officers of all the railways of these United States are now being asked to do this thing which most people find impossible. They have been taught and forced throughout their business lives to compete. They have been taught to compete by those who have trained them and directed their work, and forced to do it by the laws and the courts of the land. They have had to struggle hour after hour, day after day, year after year, to hold business for their own companies and to get it away from their companies' competitors. Getting business has been the sure road to promotion; losing it, the sure road to separation from the pay-roll.

Wearying of the struggle, they have sometimes tried to mitigate the fury of competition by agreements and combina-

tions; and then they have been stirred to renewed energy in the competitive struggle by the threat of fines, jail sentences and other pleasant things. Competition, in consequence, has become with railway men a point of view, a mental attitude, an ingrained habit. They have competed in making showings of efficiency in the operation of the various lines; competed in soliciting business; competed in rendering service; competed at all hours of the day, and often into the hours of the night; competed by taking thought until finally most of them got so they competed automatically.

And now suddenly all is changed. They are told by superior authority that they must utterly desist from competing. They are no longer working for individual companies, but for a single consolidated railway system. Their duty now is not to hold or get business, but to direct it over the lines and through the gateways most able to handle it. They must forget entirely that they are on the payroll of some individual road, and by the utmost "co-operation" and "coordination" move the largest possible volume of traffic over all the railways of the United States.

It is not only desirable, but absolutely necessary, that railway men should be asked and required to make this sudden revolution in their mental attitude and habits. The demands upon railway service, especially in Eastern territory, have become so vast that, even with the most efficient management and operation of the railways the supply of transportation cannot be made sufficient. In order to make it as near sufficient as possible it is necessary to operate the railroads as a single system. Only in this way can all lines and facilities be utilized to their utmost capacity. The old-time competition is absolutely inconsistent with the operation of all railways as a single system.

Can the railway officers of the country accomplish the feat of changing their mental attitude and breaking the habits of a life time on such short notice? Can they cease trying to make good showings for their individual lines, and suddenly devote themselves exclusively to making the best possible showing for the railways of the United States, regardless of the effect on their individual lines? This they must do if the present plan of operating all the railways as a single system is to be a success. If it is not an entire success railway officers, whether justly or not, will get most of the blame. Their own welfare, the future welfare of the railways, the future welfare of the nation, demand that they shall break with all their business predilections, prejudices and habits and do all they can to make it a success, and a great success.

A good many years ago a very young man asked a very wise man: "What is the chief qualification of a man for practical success in life?" The wise man replied, "Adaptability." There are a lot of other qualities that are important; but there is none which it is more important for railway officers to show in the present crisis in railway and national affairs. They are confronted by new conditions of unprecedented complexity and difficulty. Also, they have a new boss. He is the Director-General of Railroads, and he represents the government of the United States. He is a boss with a tremendous power, but he has not shown any disposition to abuse it. He has shown a disposition to treat everybody decently, to give everybody a fair chance, and to avail himself of all the energy, experience and brains in the railroad business. But he has some very decided opinions as to how the railroads should be run while he is in charge. He has not got his experience in the hard school of railroad competition, and he thinks of the railroads as a single system and expects others to thus think of them and act accordingly. As applied to the present crisis the fundamental idea of the new boss is sound; and he should receive unstinted support in carrying it out.

Meantime, the new boss and the public should be patient. They are asking a great deal of railway officers when they ask them to change the mental attitude, the habits, the practices of a lifetime. If there has been too much competition in the railroad business, the public, with its Sherman law and anti-pooling law, has been mainly to blame. No other class of men is more sincerely anxious to serve the government in this crisis than railway officers. But they are being asked to revolutionize their business habits and methods under conditions of the greatest pressure, stress and turmoil. They will accomplish the revolution just as quickly as any other class of men could. But if they don't accomplish it in a few days, or even a few weeks, people shouldn't find fault.

Some charge that railway officers are deliberately "lying down," that they are not trying to make the present government control a success. Those who say such things either haven't tried to ascertain the facts, or they deliberately lie. Railway officers are as patriotic as any class of American citizens; and every patriotic citizen recognizes that any man, who, under present conditions, could even hope that government control would be a failure, ought to be in Fort Leavenworth. But it isn't easy for a whole class of men suddenly to change business habits and methods which have become almost as natural to them as breathing and eating.

Making of Rates Under Government Control

THERE HAS BEEN a good deal of discussion before the congressional committees at Washington as to whether under government control rates should be regulated by the Interstate Commerce Commission or by the President through his deputy, the Director General of Railroads.

Who shall fix the rates is not so important as how they shall be fixed. Some witnessess who have appeared before the committees have contended that rates should not be increased to cover advances made in the wages of employees to offset increases in the cost of living due to the war. This raises a very important question of public policy. It is possible that the present freight and passenger rates will prove high enough to enable the railways during the war to earn enough to pay their operating expenses and taxes and the government guarantees to the railway owners. But this does not seem probable.

The advances in wages asked by the various classes of employees would run into hundreds of millions of dollars. Furthermore, the current high prices of railway equipment and supplies will have a greater and greater effect on operating expenses as equipment and supplies bought at the old prices are replaced to a larger and larger extent by those bought at the present high prices. It is not probable that government control will be able to effect sufficient economies to offset the increases in expenses which will result from these causes. Therefore, unless passenger or freight rates or both are advanced while the government is in control, the earnings may not be sufficient to pay operating expenses, taxes and the guarantees to the companies.

If present rates do prove insufficient to cover expenses, taxes and guarantees, should they be raised, or should there be allowed to be incurred a deficit which would have to be borne by the taxpaying public? The only argument which has been advanced against making rates high enough to prevent a deficit is that the prospective increase in wages will really be a war measure and that the traveling and shipping public should not be required to pay expenses incurred in carrying on the war.

If this argument is sound as applied to the railroad business, why should it not be used in reference to other businesses? War conditions have increased the cost of operating the farms. On the theory under consideration, instead of the prices of farm products being increased enough to offset the high cost of farming, the prices of farm products should

be held down and the farmers should be reimbursed for their increased expenses through taxes levied upon the public. Similarly, there have been large increases in the cost of mining coal and of producing iron and steel. On the theory under consideration instead of the coal operators and the iron and steel manufacturers being allowed to charge higher prices than before the war to offset their increased expenses, they should be required to reduce their prices to the pre-war basis and then the public should be taxed to reimburse them for their increased expenses.

Everyone would say at once that it was absurd to suggest that instead of prices in the various industries of the country being raised to offset increased expenses the public should be taxed to reimburse concerns of all kinds for these increased expenses. But if it would be absurd to propose that the public should be taxed rather than that prices should be raised to offset increases in the cost of production in other lines of business, why is it not absurd to contend that the public should be taxed rather than that rates should be raised to offset the increased cost of producing transportation?

Either those who would have to pay increases in rates to offset increases in railway expenses are the same persons who would have to pay taxes levied for the same purpose, or they are not the same persons. If they are the same persons, then it would make no difference whether rates or taxes were increased. If, on the other hand, the ratepayers and the taxpayers would be different persons, the argument in favor of raising rates rather than taxes is conclusive. If the rates were raised those who use the service of the railways would pay the increased expenses in proportion to the amount and value of the services which they receive. On the other hand, if taxes were increased there would be no equitable relationship between the amount and value of the railway service rendered to individuals and concerns and the increased taxes they would have to pay because of the increased cost of rendering the service.

As a practical matter, it is equally desirable from the standpoint of the railways and of the government that during the period of government control rates shall be made high enough to cover all operating expenses, taxes and fixed charges. The difficulty of solving the railroad problem after the war will be far greater if there is a wide difference at that time between earnings, on the one hand, and expenses, taxes and fixed charges, on the other, than if there is no such difference. If the railways are to be returned to the management of their owners, the problem of readjustment after the war will be much simpler if income and outgo are practically the same than if there is a wide difference between them. If government ownership should be adopted, government management would be undertaken under much more favorable auspices if it began with earnings which were adequate than if it began with a deficit to face. Even though there were surplus earnings when government ownership and actual government management commenced, there would be grave danger that the surplus would speedily be converted into a deficit; and if government ownership and management should begin with a deficit, the chances are that there would always continue to be a deficit for taxpayers to pay.

The only sound policy to adopt either now or later, whether under government control or government ownership, will be that of making the rates and earnings sufficient to cover all expenses and fixed charges. Under existing law, however, the Interstate Commerce Commission is not required to regulate rates on this principle. All it is required to do is to fix "maximum reasonable rates." This requirement is susceptible of different interpretations. If the power of rate regulation is to be reserved to the commission it should be allowed to fix the relations between different rates as it deems fair, but at the same time it should be required to make rates as a whole high enough to cover all expenses, taxes paid from earnings and guarantees to the companies.

The Executive Versus the Judiciary

IT IS A NICE QUESTION as to what portions of the assets of the Denver & Rio Grande are actually in the hands of receivers. Judge Sanborn on January 26 appointed A. R. Baldwin, vice-president of the Western Pacific, and E. L. Brown, president of the Denver & Rio Grande, receivers, but he in substance left it up to the director-general of railroads' office to say what they were receivers of. The President's proclamation of December 26 contains the following:

"Except with the prior written assent of said director, no attachment by mesne process or on execution shall be levied on or against any of the property used by any of said transportation systems in the conduct of their business as common carriers, but suits may be brought by and against said carriers and judgments rendered as hitherto until and except so far as said director may, by general or special orders, otherwise determine."

The Equitable Trust Company as trustee for the first mortgage of the Western Pacific, which is guaranteed principal and interest by the Denver & Rio Grande and on which interest is in default, having brought suit against the Denver & Rio Grande as provided in the mortgage, asked for the appointment of a receiver. When the case came before Judge Sanborn in Denver last week the director-general of railroads' office sent a telegram which was read in court, which said in substance that in view of the President's proclamation, the director-general's office thought it was not necessary to be represented before Judge Sanborn, assuming that the only attachment granted would be on such assets as were not used in the business of transportation and that the attachment would not cover revenue or income received since January 1. Obviously this left an opening for the court to define what assets were covered and what were not covered by the President's proclamation, but whether or not the director-general's office hoped that this burden would be assumed by the court it is impossible to say. Whatever the hopes may have been, however, the court promptly passed the question back to the director-general's office in accordance with the well established traditions of American courts. Judge Sanborn made a comprehensive order differing in some respects from the usual order made when a railroad is placed in the hands of receivers, but in the main much like the usual order which if it had not contained a final proviso would have apparently placed an attachment on the whole property. This final clause in substance said that the above order applied to such property as the director-general's authority did not prevent an attachment from applying to. And there you are, as the saying is.

Time and again in this country the legislative branch of the government has tried to pass some law or other in such form as to shift to the shoulders of the Supreme Court the responsibility for making effective the intentions of one or other of two contending factors, neither of which was willing to take the responsibility of drawing a bill which would make their intention unmistakably clear. The commodities clause of the act to regulate commerce was such a law. The Supreme Court in cases like these has nearly always refused to assume the responsibility which belongs to the legislature. Judge Sanborn's receivership order similarly refuses to assume responsibility which apparently he believed attaches to an executive order. There is a touch of humor to the whole thing, serious and delicate as are the questions involved.

The Denver & Rio Grande-Western Pacific tangle is just about as complicated a legal and financial situation as could be found, or in fact as has occurred in the history of American railroads. It seems just a bit tough on the director-general's new organization to throw that kind of a situation at it; still we have learned to accept the fact that courts deal in justice, not mercy.

Letters to the Editor

Reducing Loss in the Transportation of Perishable Freight

CINCINNATI, Ohio.

TO THE EDITOR:

There is much said relative to the agricultural end of perishable freight—farming methods, the centralization of packing houses, loading, marketing, etc.—but little recognition is given to the important factor of refrigeration and ventilation of perishables when shipped. The wastage in food products in transportation is attributable to three causes:

1. The failure of originating shippers to give definite instructions concerning icing, non-icing, ventilation, etc., which properly would protect the shipments.

2. Delay caused by reconsignment and the failure of the shipper to advise what protective service is to be given beyond the reconsigning points and during the time the car is held.

3. Failure of the carriers to furnish protection in accordance with specific instructions, or to furnish sufficient protection when shippers do not request definite service.

To offset these various causes which result in wastage, it is necessary to have transportation specialists who are thoroughly familiar with the fundamental principles of protective service. To attain the maximum results each employee concerned must be trained and recognized as an expert in his particular line, and able to perform such accessorial protective service as directed through the main office. Every trainmaster, agent, yard clerk and trainman must be a student of the principles of protective service, as all share in the responsibility for the safe movement of food products. On the Cleveland, Cincinnati, Chicago & St. Louis, such employees receive instruction at periodical terminal meetings and classes, written bulletins being issued from time to time, defining their respective duties. Our efforts in the prevention of perishable freight wastage have been confined largely to the application of an analysis of the following factors governing damage to food products in transit:

(a)—Inherent depreciation.
(b)—Refrigeration.
(c)—Ventilation.
(d)—Heating.
(e)—Movement.
(f)—Loading, stowing and bracing.

An absolute record is taken at all terminals and junction points of every car of perishable freight passing over Big Four rails, showing full information as to refrigeration and ventilation, etc., and what accessorial service is given. Such records are checked through at the central headquarters to take the necessary action to eliminate negligence and errors. Our results so far have been very gratifying. Proof of the elimination of wastage is indicated by the fact that freight claims for damaged perishable freight on account of improper refrigeration and ventilation alone were 53 per cent less in 1917 than they were in 1916. We are enabled through these methods to handle long distance shipments and place them on markets in first class salable condition.

Constant changes in operating forces of railroads, especially under the present stress of circumstances, paves the way for increasing failures, but what we have accomplished through united efforts, for economic reasons, we shall make every effort to continue for the all-important reason of patriotism.

C. W. HICKS,
Superintendent, Refrigeration Service,
Cleveland, Cincinnati, Chicago, & St. Louis.

Standardization of Buildings

CLEVELAND, OHIO.

TO THE EDITOR:

Does the standardized building unit offer a solution for speeding up railroad building construction? Small railroad buildings, and to some extent some reasonably large ones, have been standardized. The object is to standardize the construction as it applies to essential details, leaving the question of arrangement to be decided for each building. For instance, such a plan permits pre-fabrication of the steel roof trusses, purlins, columns and lintels. The doors and sashes may be bought on an annual contract, and the lumber and roofing may be held in stock. Such a plan also permits enclosing a building in the minimum time after which almost any interior arrangement and finish may be installed to suit the local conditions.

The larger railroads have highly organized building departments competent to design their structures, but unfortunately these departments operate on the same basis as a consulting engineer or an architect, and endeavor to design and construct a building to suit the department that is to use it. After all, building design for shop or warehouse purposes is largely a question of floor space and day-light lighting. How the result is obtained is non-essential as long as the cost is within practical limits and the type of construction and workmanship give long life at low maintenance. A standardized design based on the best practice will, of course, produce that result just as well as a special design.

Several standard building units will undoubtedly be necessary for railroad purposes but when they are adopted the principal part of the designing is done and the essential materials may be ordered immediately. On the other hand, if a special building is used the designing department must finish its part before the plans can be approved and the material ordered. This requires time and costs money, both of which are saved with a standard building unit. Special designs also entail construction delays, higher priced materials, and waste, all of which add to the building cost. The railroad building problem would be greatly simplified if the engineering department could submit several standard building units from which one might be selected. The finished structure could be visualized quickly and frequently in concrete form, where structures of the kind in question had been built.

An investigation of a large number of railroad buildings designed for different services shows that, with a few notable exceptions, their width and type could be standardized. For instance, outbound freight houses are almost uniformly 30 ft. wide inside. Combined inbound and outbound houses are for the most part 50 ft. wide. This is also the width generally used for storehouses and a number of other buildings. In connection with any of these buildings there does not seem to be any objection to a 20-ft. column spacing. With these factors fixed, the roof trusses and framing can be standardized. The question of head room can be decided at the time a building is decided upon, as fabricating the columns is a relatively simple proposition which can be done quickly.

The roof construction is important but a standard can readily be adopted which will give the best service for the money invested. To a certain extent, the type of roof used will depend on the design limits of the trusses. Sashes and doors should be of standard sizes, and of either wood or steel as either is readily obtainable or can be purchased under an annual contract. Floor and platform construction need not be fixed but the building operation is simplified if a standard is adopted. Platform and canopy widths and clearances should be left indefinite as to exact width. They will give the building a certain amount of flexibility in

overall width in meeting track and driveway clearances. In other words, a foot or two in the platform width will affect the building cost but little, and may mean much in track clearances. Floor and platform heights above rail and driveways vary with localities but this should not affect the standard. The design of the foundations must necessarily vary with soil bearing power conditions.

So much for a standard freight house unit and its essential details. These, it appears, can be standardized and used in most locations. With a standard design the usual benefits follow, such as a standard bill of material, much of which can be stocked where the annual building program is sufficiently large to warrant such a policy. Standard design also permits improvements in the workmanship without sacrificing speed in the various operations. When mechanics are familiar with building details, supervision is simplified and the work of the man in charge may be confined largely to inspection. In other words all building operations may be standardized. With the design and specifications prepared in advance this time and cost is saved. Contractors familiar with the standards are prepared to furnish bids on short notice, and if competition is keen, a low price will be obtained, because the prices can be based on actual experience. Similarly, if a structural shop has its shop details prepared in advance it is in a position to make a close figure. This, in turn, means scheduling the job in the shop when it has been placed, rather than awaiting such time as may be necessary to prepare a design as is frequently required, and later working out the shop details.

In scheduling a building operation alone, the standard building unit is a great asset. With the material and labor quantities pre-determined and the contingencies provided for, the building can be definitely scheduled and finished on or ahead of time. This means much to a railroad and everything to a reputable contractor. In expediting the movement of materials to the building site, every one who has anything to do with it is on a railroad basis, where time is the essence of the operation. Literally thousands of details take care of themselves automatically, or may be left to the subordinates.

A 50-ft. building unit undoubtedly could be substituted for a number of smaller shop buildings. In the latter, however, a change in the column height would be necessary, and in many instances, provision would have to be made for traveling cranes. In general, other shop buildings, such as wood mill, wheel, machine, forge and boiler shop buildings vary in width from 60 ft. to 80 ft. In some cases clear spans are adopted and in others a row of columns is not found objectionable. Frequently the objections are theoretical rather than practical and the increased cost of a clear span over a line of columns is not warranted. An erecting shop, or a locomotive repair shop presents a different problem which must be treated in a special way. Even in these, much time and money can be saved by using standard material sizes in the design. Waste is reduced to a minimum and much labor saved in assembling and erecting.

In the final analysis, the present railroad building problem is one of speeding up production. Railway organizations have been depleted so that the time is fast arriving when their entire attention must be directed toward keeping the railroad in operation. Traffic, transportation and mechanical facilities must be expanded to cope with the emergency situation. Construction must be speeded up, and standardized building designs and operations will afford one means of accomplishing that result. Another is to contract both the design and construction to specialists who are able to shift their forces from one railroad to another, thus using the labor available for building operations, most economically and efficiently.

E. M. HAAS,
Sales Engineer, The Austin Company.

The Valuation of Ties

NEW YORK CITY.

TO THE EDITOR:

The docility of figures, caught young and skilfully broken, has been often noted, but in the letter on "Average Life of Ties" published in your issue of January 11, we must admire more the ingenious illustrations that such figures are brought to support. Take the last example: two kinds of ties, having lives of 5 years and 15 years, respectively. Assume that 15 ties of each kind are placed in track. At the end of 5 years the first set, having furnished 75 tie-years, must be replaced, and in 15 years the second set, with 225 tie-years to their credit, go likewise. Thus the 30 ties yielded 300 tie-years, or an average of 10 years per tie—the average total service age being, as might be expected, the same as the average of the lives at first assumed.

As a railroad man the writer believes that in railroad valuation we should press our valid claims and avoid hypotheses that cannot be justified or demonstrated. We should strive for a fair and adequate allowance for overhead costs. We should also by all means uphold the truth that if a property is maintained in good operating condition capable of affording proper service to its patrons its value as a basis for rate making cannot be diminished on the plea that there is some accrued loss of service life in its elements. Its value for this purpose must in justice always remain the full value of the investment the concededly fair measure of which is the reproduction cost new. This cannot be decreased or impaired on account of the natural physical changes in such a property.

It is a strange mental aberration of many courts and commissions, and I regret to say also of some engineers, that because the wearing life of ties in a piece of track will, after a time, average 50 per cent of the original life, and will continue so indefinitely with proper maintenance, therefore a fund or its equivalent equal to the 50 per cent of expired life, which fund could never be used on the ties, should have been provided, or that 50 per cent of the investment in the ties should be struck off, in arriving at a value for rate making. The only justification for the creation of a reserve fund or its equivalent for renewals, in the case of an indefinitely continuing property, is where it is necessary to equalize the annual expenditures for maintenance and renewals. If earnings in the past were sufficient to have provided a fund equal to this 50 per cent. value, but such earnings were paid out in dividends, which was a perfectly sound economic and legal thing to do, it is not just or fair to penalize present security holders for the benefit of present rate payers because other rate payers in the past possibly paid too much.

It is encouraging to note that at least one state commission (Massachusetts Public Service) has seen the light and come out squarely for the right, and also that some of the courts are waking up and refusing to follow the vicious precedent of the Knoxville Water Case. We may confidently expect that ultimately the U. S. Supreme Court will reverse itself on this subject as it has reversed itself on some other matters.

J. W. BURKE.

SIAMESE STATE RAILWAY RETURNS.—According to a recently issued report of the operations of the southern line of the Siamese Government Railways for the fiscal twelvemonth ended March 31, 1917, there was an addition of 178 miles to the length of the main line and of 33 miles in sidings, completing a total length of 642 miles of railway open to traffic at the end of this period, with through connection from Bangkok to Trang, Nakawn, Sritamarat and Singora. During the period under review the gross earnings amounted to $770,908, or $206,129 more than in 1915-16, yielding a dividend of 1.51 per cent, against 1.27 for the previous year. The total number of passengers carried was 1,661,111, an increase of 310,872.—*Commerce Report.*

Activities of the Railroad Administration

A Traffic Investigation Committee Appointed; the Congestion Continues; Other Developments

WASHINGTON, D. C.

ON WEDNESDAY, Director General McAdoo appointed a traffic investigation committee consisting of B. L. Winchell, traffic director of the Union Pacific; G. F. Randolph, commissioner of the lines in official classification territory, and T. C. Powell, vice-president of the Southern Railway. This committee is to make a study of the great traffic currents of the country with a view to seeing what steps can profitably be taken in order to shift the traffic from the most seriously congested gateways to less congested gateways and from more congested ports to less congested ports.

The director general has explained to the committee that by reason of government possession and control the situation should be viewed from the standpoint of a national railway system consisting of all railroads, instead of as heretofore from separate standpoints of separate railroad companies. The committee is to deal with the larger questions affecting movements of traffic between the three regions and will not interfere with similar studies which will be conducted under each of three regional directors with reference to traffic moving within his part of the country. The members of the committee have been in conference with Edward Chambers, Mr. McAdoo's traffic adviser.

Severe Weather Conditions Hamper Railroads

The railroad administration and the railroads still continue to struggle with unprecedented winter weather conditions which have made it difficult to bring about much improvement in the eastern district, although the western and southern lines have generally reported conditions better than normal.

For the purpose of assisting to clear up congestion on the Pennsylvania east of Pittsburgh, the eastern roads have been ordered to contribute pro rata 34 locomotives to the Pennsylvania for a time.

The conditions in the eastern district during the latest cold wave are described in an article on another page.

Owing to the shortage and crippled condition of lighters and tugs and the physical condition in New York harbor, and for the purpose of speeding up the loading of ships, Director General McAdoo has ordered certain roads to assign their piers for the loading of ships. Details are given in an article on "Export Freight in Trainloads" in this issue.

R. H. Aishton, regional director for the western lines, reported on February 4 from Chicago: "Extremely cold weather last night which continues to-day, has very seriously interfered with movement of both passenger and freight traffic. While there was no new snow, a very strong wind drifted all cuts full of snow and stalled a number of freight trains during night. Conditions in a part of territory has been so severe that it was necessary to annul passenger service where it could be done without great inconvenience to public and this will continue for a period of three or four days when it will be restored to the regular schedules. This is absolutely necessary to take care of fuel and food movement. Westbound business is being taken in very fair shape by western lines and extra efforts being made to move all empty cars that are being received here to corn loading territory. Generally fair and warmer weather is predicted for Tuesday and Wednesday over a greater part of this forecast district; 5,496 empties placed for loading coal on principal coal carriers lines out of Chicago today; 3,347 cars coal loaded Saturday."

Mr. Aishton also forwarded a report as to conditions on the Pacific Coast from William Sproule, president of the Southern Pacific, showing the condition of most roads to be normal and without congestion. There was some congestion on the Southern Pacific for eastbound loads.

Coal Production Curtailed

The National Coal Association on January 31 issued a statement declaring that "car shortage and congestion primarily, and aggravated by extremely severe weather conditions during virtually the entire month of January, had curtailed production of bituminous coal throughout the country to an extent unequalled in many years" and that "this serious condition emphasizes the need of the embargoes already laid by the railroads to insure better movement of fuel and coal." Unless conditions improve, it was stated, it may be necessary to have an extension of these embargoes. According to the statement the lost production for the month was estimated at not less than 16,000,000 tons.

Grain and Corn Situation

A delegation of grain dealers and elevator owners called on Director General McAdoo to discuss methods of moving the western grain crop to the seaboard. They told him that there is no danger of a shortage in grain but that there are millions of bushels of wheat, corn and oats ready for shipment to the Atlantic seaboard if transportation can be provided and that if the wheat and oats now stored in elevators and warehouses along the western railroads could be moved out the soft corn, now in danger, could be put into the elevators. Mr. McAdoo told them that if the way was cleared for acceptance at the seaboard the railroads could move at least a million and a quarter bushels of cereals daily. He suggested the issuance of a priority order for soft corn, but that was not what the grain dealers wanted.

Railroad Executives Not "Laying Down"

Mr. McAdoo is not paying much attention to charges such as those made by W. G. Lee, of the Brotherhood of Railroad Trainmen, that railroad officers are "laying down" in an effort to discredit government control of the railroads. He not only appreciates the unprecedented conditions which the roads are confronted with but he has his own ways of ascertaining what is going on and he knows that it would be the most shortsighted kind of policy on the part of a railroad man to do anything less than his best with the idea of discrediting the government, because it would react directly on the railroads themselves. Mr. McAdoo refers to the present situation as government control of railroad operation, not government operation of the railroads and he has repeatedly told newspaper men that both railroad officers and employees are showing the right kind of spirit. He has received reports that railroad facilities are in many places inadequate for the amount of traffic they are trying to handle under such difficult weather conditions. He also knows what railroad men have been saying for years about why their facilities were not keeping pace with the demands of traffic.

Order No. 6 Not Clear

The director general's General Order No. 6 ordering the railroads not to expend operating revenues for legislative agents, unnecessary attorneys and associations except such as are approved in advance has caused a great deal of uncertainty which has not yet been cleared up. It has been

assumed that the traffic associations at least would have to be continued and these and various others have filed formal requests for permission with the director general which have been under consideration by his assistants.

The Director General's Organization

More or less uncertainty has also been caused by the delay in the announcement of Mr. McAdoo's permanent organization. Since the government took over the roads an increasing number of complaints and requests for cars or relief from embargoes, etc., have been sent to congressmen, who have had difficulty in finding out whom to see about them. Many requests and complaints of this kind that formerly went to the Railroads' Commission on Car Service or the Bureau of Car Service of the Interstate Commerce Commission are now sent to Mr. McAdoo, although the commission and the bureau have been merged and are working together much as they did when they were separate bodies co-operating with each other.

New members of Mr. McAdoo's staff have arrived almost daily and have gone to work, while the announcement of their appointment has been withheld until the organization was completed. Edward Chambers, Mr. McAdoo's traffic adviser, has been working out a plan for having an assistant for co-operation with each government department so that the traffic needs of the government may be co-ordinated. H. M. Adams, director of inland traffic for the quartermaster's department, was appointed by General Goethals, but J. F. Holden, is an assistant to Mr. Chambers in charge of relations with the Shipping Board. C. B. Buxton, who was Mr. Chambers' assistant in the traffic department of the Food Administration, is working with him in his new office. Gerrit Fort, passenger traffic manager of the Union Pacific System, is in charge of passenger traffic matters and R. C. Wright, traffic manager of the Pennsylvania, is also assisting Mr. Chambers.

H. T. Bentley, general superintendent of motive power of the Chicago & North Western, is assistant to C. R. Gray in charge of mechanical matters and an engineering assistant is also to be appointed.

Deposit Balances and Salaries

At the request of the director general the Interstate Commerce Commission has requested the roads to furnish promptly information as to the deposit balances to the credit of each company and of all subsidiary companies, and also as to cash on hand. Railroads have been asked also to file information as to the salaries of their officers, which Mr. McAdoo promised to furnish the Senate committee at the request of Senator Cummins.

Traffic to the Seaboard in January

IN THE FIRST MONTH OF OPERATION of railroads by the government the number of carloads of freight waiting at North Atlantic ports for export has been reduced by 7,508; or from 41,101 on January 1, to 33,593 on February 1. This and other interesting facts are found in a report prepared for A. H. Smith, regional director of railroads for the Eastern States, by the Freight Traffic Committee for North Atlantic ports, George D. Ogden, chairman, New York City. The report covers the six ports named in the table below:

The reduction in the accumulation of supplies for the Allies at the North Atlantic ports is due to two factors—first, the improvement in the coaling of ships and their consequent faster despatch; and second, the smaller arrivals by rail, because of adverse weather conditions and embargoes.

Railroad yard and pier congestion have been relieved and the ships have released more than 4,000 cars for active use.

The following table shows the number of carloads waiting on January 1 and February 1:

Ports	Jan. 1	Feb. 1	Dec.	P. C.
Boston	1,190	998	192	16.14
New York	24,971	19,723	5,248	24.02
Philadelphia	3,531	3,307	224	6.34
Baltimore	7,164	5,878	1,286	17.95
Newport News	1,653	1,284	369	22.32
Norfolk	2,592	2,403	189	7.29
All ports	41,101	33,593	7,508	18.27

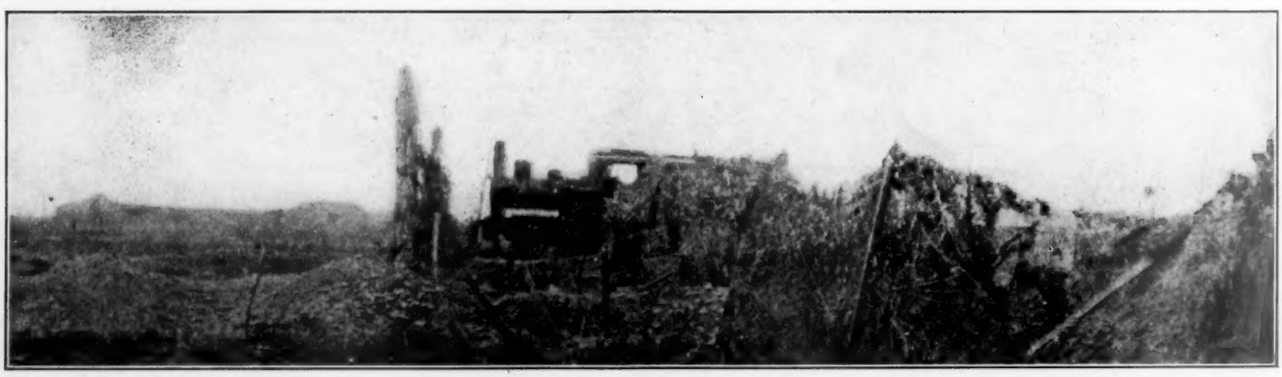
The consignees of this export freight are classified as follows:

	Jan. 1	Feb. 1
United States Government	3,369	3,329
British Government	4,682	3,270
French Government	13,615	11,750
Russian Government	4,823	4,864
Italian Government	4,093	3,090
Commercial	10,519	7,290

More than half the freight held at the ports was lying on the ground, as shown below (February 1):

Consignee.	In Cars	On Piers	On Ground	Total
United States Government	1,387	495	1,247	3,329
British Government	1,504	1,168	598	3,270
French Government	857	916	9,977	11,750
Russian Government	56	263	4,545	4,864
Italian Government	619	557	1,914	3,090
Commercial	2,292	3,477	1,521	7,290
Total	6,915	6,876	19,802	33,593

The 9,977 carloads of freight on hand February 1 for the French Government listed as on the ground included munitions of war, which became out of date by the progress of modern warfare before they could be carried across the ocean. Permits have been issued for about 30,000 carloads of freight for the Allies to be brought forward to the seaboard as soon as room can be found for it.



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One of the Oldest Relics of the War

This engine was about to start for France late in August, 1914, with a number of cars, when a German shell broke one of the wheels. The cars could be taken through a side track, but the engine had to be abandoned. It has remained so for three years and a half standing near No Man's Land at the entrance of what used to be Nieuport Gare. Note the camouflage curtain.

Hearings Before Railroad Wage Commission

Nearly All Classes of Employees Ask Higher Pay. Forty Per Cent a Popular Figure

WASHINGTON, D. C.

REPRESENTATIVES of practically all classes of railway employees have either presented requests for higher wages to the Railroad Wage Commission or have asked for a hearing for that purpose. In some cases they have referred to the commission the demands previously made on the railroads but in some they have asked from the government more than they had asked of the roads, while representatives of employees that had not asked the roads for an increase have appeared before the commission to present their case. In many cases the increase asked varies according to the requests made by individual groups of employees and there is no general request, while in some no definite request is made except for higher pay and shorter hours. Where a percentage increase is asked for 40 per cent seems to be a popular figure.

A. B. Garretson, president of the Order of Railway Conductors, and W. G. Lee, president of the Brotherhood of Railroad Trainmen, testified before the commission on February 5 on the joint demand of the two organizations for increased wages which was presented to the railroads on December 1, and which has now been referred to the commission. The hearing was set for Monday but Mr. Lee was delayed by a late train and Mr. Garretson said that as it was a joint movement he did not feel justified in proceeding alone.

The hearing soon brought out the fact that the trainmen, like the telegraphers, are already considering the possibility that the government would be a more benevolent paymaster than the railroads, when it was announced that the request to the government includes a proposition for time and a half for overtime which was not included in the demands presented to the roads. Mr. Lee said that because of the previous attitude of the railroad managers it had been considered useless to do so.

The joint request provides for increases ranging from 20 to 40 per cent. The desired rates are stated in what is known as proposition No. 65 as minimum rates per mile, per day or per month for the various classes of service. The proposed rates were published in the *Railway Age Gazette* of December 7.

Objects to Presence of Railroad Men

The controversial atmosphere which has usually surrounded wage negotiations in the past became evident at the outset, when Mr. Garretson remarked on the presence of numerous railroad officers who have taken an active part in wage negotiations in the past, including J. W. Higgins, chairman of the Association of Western Railways, and J. G. Walber, of the Bureau of Information of the Eastern Railroads. He said he had understood from the President and the Director General that the brotherhoods were to deal only with the government and that there was to be no "other side." "We do not intend to take the position of discussing this question with our former employers," he said.

He was informed by Chairman Lane of the commission that he had not understood that an ex parte proceeding was contemplated and that the railroad men had been invited to be present and to give such information as they could. Mr. Garretson objected to information being presented by the railroads without an opportunity to question it and Mr. Lee said that after the administration had asked for their co-operation and had recognized in principle the increased cost of living as a justification for higher wages they had abandoned their efforts to compile data as for an arbitration proceeding and had thought that government statistics showing the increased cost of living would be sufficient. Judge Covington said that the railroad officers had not been invited to appear as a committee or to antagonize anyone but to supplement the information presented and that if the brotherhoods find anything in the record to correct they will have an opportunity to do so. Mr. Lee asked the commission to excuse him for being suspicious but that he had been dealing with railroad officers for half a century and he charged that many of them are "laying down" and deliberately trying to make a failure of government control. He mentioned particularly the New York Central Railroad and the Pennsylvania Railroad.

An Atrocious Charge

Eighteen months ago four social bandits, at the head of four railway men's organizations, threatened to paralyze the whole industrial life of the country by calling a general strike of railway men. It was a hold-up of a nation, by promising what President Wilson characterized as "an unspeakable calamity."

Yesterday one of these four men, Warren G. Lee, president of the Brotherhood of Trainmen, made the charge before the Railway Wage Commission that in this hour of a nation's deep need four bankers of New York had ordered engines to be left to freeze while millions suffered for lack of coal.

The hiss of loyal labor, millions strong, should follow the exit from Washington and from public notice of this vile traducer, this poisoner of more ignorant minds.—New York Tribune.

Trainmen Are Piece Workers

Mr. Lee read a prepared statement regarding the wages and conditions of employment in train service, saying the men have never been paid what they were worth but only the least they could be got to work for. He read comparative statistics of wages in other industries, principally the steel industry, and apologized for the conservatism of his organization as compared with that of trade unions, saying that so much machinery was required to obtain an expression of the wishes of the men that they often spent a year in discussing a proposition before acting. He emphasized the extra living expenses which trainmen pay because they are away from home and read some letters from men earning $80 to $100 a month giving their living expenses, with comparisons of 1917 with 1913. There has been no increase in wages since that time, he asserted, except in a few instances and he dismissed the Adamson law as a factor in wages by saying its only effect had been to increase overtime payments during a year of unusually heavy traffic. A wage of $2.67 a day for a brakeman in 1917, he said, was

only equivalent in real purchasing power to $1.39 in 1913.

In urging the time and one-half for overtime Mr. Lee said it was necessary to prevent unreasonable hours of work and he paid his respects to the practice of running long trains.

Chairman Lane and Judge Covington of the commission interrupted a discussion of the complicated wage schedules to ask how the men would consider abandonment of the mileage system of payment and the substitution of payment by the day.

"You could do nothing that would stir up such a hornet's nest," replied Mr. Lee. "You can't afford even to consider it if you want to promote harmony and the co-operation of the men. That would upset the whole plate of beans."

"I understand that to be your attitude," said Chairman Lane, "but, why should that be so, if you are assured adequate wages?"

"If the men got a substantial increase would they be captious about the method?" asked Judge Covington.

Mr. Lee replied that they would, that the mileage basis was the foundation of the schedules, and that as the railroads are paid by the mile for their service the men were entitled to the same principle. The roads might try to run a man 200 or 300 miles in a day, he said, or might even try to make a man work a full eight hour day in case he completed his run earlier.

"I am merely suggesting it," said Judge Covington. "I don't know that it would be wise at this time to try to interfere with your highly complicated schedules, but why isn't it in the public interest to make as many miles as possible provided you get adequate pay on the time basis?"

"We are piece-workers," said Mr. Lee, "and you would find the men in the munitions plants if you ever tried it."

Station Agents and Station Employees

E. H. Norton, representing the Order of Railway Station Agents, asked for a basic eight-hour day with time and a half for overtime and increases in wages. He described the conditions of work of a station agent, saying that 50,000 of them are practically strangers to their families because they have to work such long hours. He said a station agent has to be a business man, a diplomat and an expert accountant and that he should be considered on a par with the postmaster in his town, who, he said, usually has a much larger force than the station agent, works only eight hours a day and receives higher pay. The station agent devotes one-third more time to the business of earning a living than the average business man or government employee, he said.

P. J. Coyle, grand president of the Brotherhood of Railway Station Employees, representing baggagemen, station cleaners, freight handlers, checkers, etc., asked for a general 40 per cent increase and a higher percentage for the lower paid men. He said that at one station employing 90 to 110 men the "turnover" was so great, caused by the men leaving for other work, that in two months 1,400 men had been on the payrolls.

D. W. Holt, grand chief of the Brotherhood of Railroad Signalmen, spoke on behalf of the men who instal, maintain and repair signal apparatus, reading letters from men in various parts of the country outlining their conditions. He presented the requests that had been filed with various roads.

Train Despatchers

On January 29, G. S. Sandlin, of the Southern Railway, appeared on behalf of train despatchers and asked for the increases named in a petition to Director General McAdoo which has recently been circulated among the various roads. The petition asked a monthly salary of $235 for chief despatchers, $225 for assistant chief despatchers, and $215 for trick despatchers.

A. J. Tatlow, of the Independent Order of Railway Employees, appeared on behalf of station agents, telegraphers, clerks and other employees.

Maintenance of Way Employees

T. J. Garvey, president, and E. S. Begg, general secretary of the Maintenance of Way Employees' Association, testified on January 30. Mr. Begg told the commission that the trackmen perform the hardest and most disagreeable work on a railroad and that they have very little chance for promotion. He said a track laborer can get higher wages as a common laborer than he could get as a section foreman after five to seven years of experience. Section foremen, he said, receive $50 to $95 a month and are subject to call 24 hours a day. The average track laborer, he said, is paid $1.15 a day. "Why doesn't he go and get a better job?" asked Chairman Lane. Mr. Begg replied that there is a fascination about track work and railroad work of all kinds that seems to hold them until they are worn out, and he introduced a man who had been engaged in track work for 52 years. Few stay long enough to become foremen, he said. Out of a membership of 23,000 in the organization, over 3,000 have enlisted in the army or navy.

How the Investigation Is Being Conducted

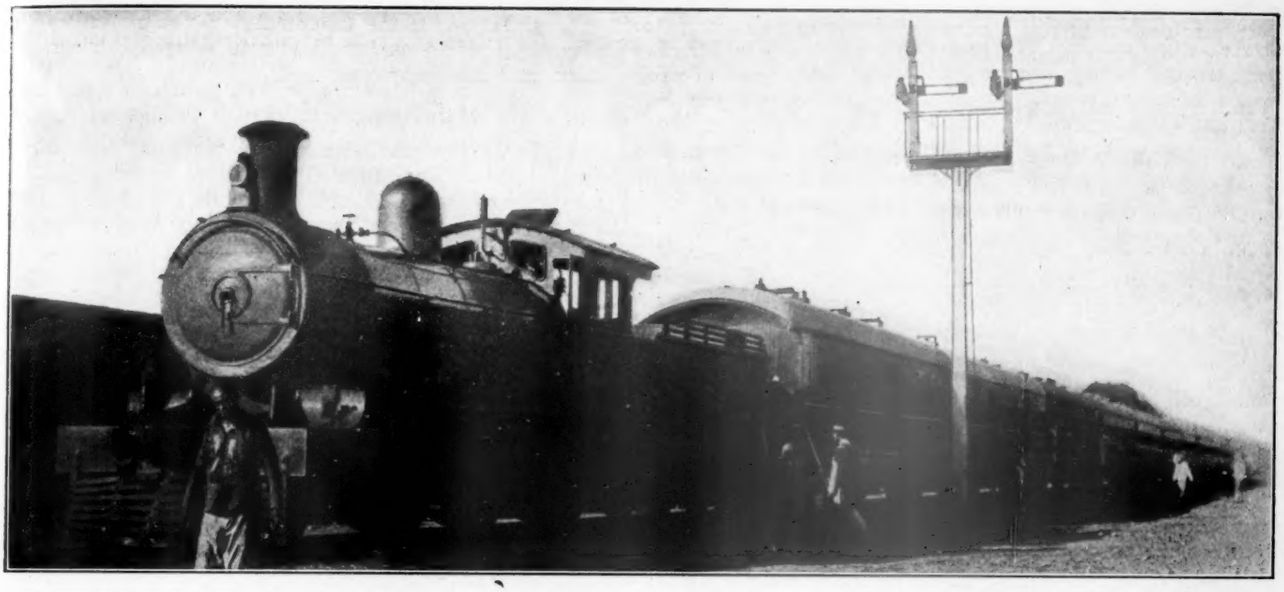
In most cases the organizations presenting requests seek to represent all employees in their classes of employment and it is understood that the commission is prepared to accept this plan in general, but among many classes of employees that are not well organized there are overlaps, as where the employees in one section of the country belong to an organization of their own but those of the same class in another section belong to an organization that represents various classes. Many of the station agents, for example, are members of the Order of Railway Telegraphers, while some are members of the Order of Railway Station Agents, and others are not members of any union.

The investigation is being conducted along entirely different lines from an arbitration proceeding and the commission is by no means depending upon the facts laid before it by witnesses at the hearings. Its boards of statisticians and examiners are studying all the available statistics that have already been compiled by government and other agencies, both with a view to reaching a conclusion as speedily as practicable, and for the purpose of studying the relations between wages in various classes. This will offset to some extent the disadvantage of the unorganized employees who have not the means for presenting their case in a forceful way that have been employed by the brotherhoods, with their lawyers and statisticians.

Other Hearings

Thomas McNeill, representing car repairers, was to testify on February 8; W. S. Stone, grand chief of the Brotherhood of Locomotive Engineers, W. S. Carter, president of the Brotherhood of Locomotive Firemen and Enginemen, and A. O. Wharton, representing mechanical department employees, on February 11; J. B. Parsons, representing construction, maintenance of way employees, and E. T. Thompson, representing colored employees, on February 12.

THE PRINCIPAL COAL EXPORTS OF THE WORLD IN 1913, including that used for bunker purposes, were Great Britain, 93 million tons; Germany, 40 millions; United States, 29 millions; Austria-Hungary, 9 millions; Belgium and Canada, about 5½ millions each; Netherlands, slightly less than 5 millions; Japan, nearly 4 millions; British South Africa, 2½ millions, and Australia, 2 millions. A compilation by the National City Bank of New York shows that the United States now holds second rank as a coal exporter.



Photograph from Underwood & Underwood, N. Y.

The Car Conservation Problem Solved in China

"Free-time" of Only 12 Hours, High Storage Rates and Charges Based on Capacity of Car Secure Results

By John Earl Baker,
Adviser to the Chinese Ministry of Communications.

EVERY MAIL FROM AMERICA brings some story of a desperate car shortage. From a shortage of cars there's a shortage of coal. From a shortage of coal there's a shortage of steel. From a shortage of steel there is a shortage of ship and shells. And from a shortage of these the war may be lost, "all for the want of a horseshoe nail." Under such conditions it may not be considered impertinent to call the attention of the foremost railway nation of the world to the car performance in China,—China one of the newest countries in point of railway history, a land considered backward in everything that pertains to efficiency.

So far China has no car mileage statistics. But on the Government Railways, the equipment and its capacity have been inventoried, and tonnage statistics of goods handled are compiled according to uniform rules prescribed by the Ministry of Communications. Thus there may be computed the number of tons carried per ton of carrying capacity. In 1915, each ton of carrying capacity transported on the average 69 tons of goods. Compared with this, American cars in 1913 (the latest figures available here) transported some 24 tons of freight per ton of carrying capacity. What would it not be worth to treble the carrying record of American freight cars?

But the comparison must not be allowed to stand just as it is. While the Chinese car carried three tons to the American car's one, it did not carry them so far. The average haul per ton in the United States was about 145 miles; in China, it was only 89 miles,—56 miles less. There are two ways of looking at this comparison. One way is to consider that the American haul is 63 per cent longer than the Chinese haul, and consider the discrepancy in tons carried accounted for by that much. The other way is to remember that after a car is loaded and on its way it does not take long to run an additional 56 miles. Even if the American car encounters a terminal in the course of that additional 56 miles a delay of more than one day to a loaded car is something to be explained. The Chinese car gets a fresh, full load about every five days. The American car requires about 15 days to accomplish this feat. Something more than 56 miles of haul and a terminal delay must be used to account for this difference of ten days.

Chinese Cars Keep in Motion

There are other factors, purely statistical, which impair the full validity of the comparison just given, but they may be disregarded for the sake of more important issues. Freight cars are classed among "rolling stock," but every car distributor in America knows that his car stands still a great deal longer than it rolls. Freight cars are designed to carry goods, but when they do roll, they are absolutely empty about one-third of the time, and on the average nearly half empty much of the loaded time. There are no figures of empty car mileage, or of tons per loaded car on Chinese railways, but the fact is that Chinese cars are out of motion but a relatively short time and when they are in motion they are heavily loaded. How is this accomplished?

On the Peking-Mukden line, for example, the largest freight carrier of the Chinese system, heavy loading is made certain by the rule that freight charges are assessed according to the capacity of the car, not on the actual weight of the load put into it. The shipper therefore is immediately interested in loading all he can into the car, rather than as little as he can,—the common American experience. The oversight of the railroad must therefore be exerted to prevent overloads rather than to stimulate full loads. This is accomplished by simple means. In the case of bulky articles, the roof of a closed car is limit enough. So shippers call for open cars. Bamboo or reed matting covers are used

as a protection against the weather, and are articles of commerce at destination. The load limit is fixed by a loading gage, placed on the lead to the loading tracks, and under which the car must pass. In the case of heavy commodities, frequent weighings of suspected cars detect loads in excess of 110 per cent. of marked capacity, while a penalty of triple rates for excess loads supplies the deterrent.

Heavy Demurrage Rules

No matter how important heavy loading may be, it is equally important to get the car under its *next* load promptly. Car records, reports, and supervision are all important factors in promoting that result, but there are handicaps suffered by the American car which must be removed before it can aspire to the Chinese record. The Chinese car is aided immensely by the demurrage rules. The prevailing "free-time" allowed is 12 hours of daylight. Contrast this with the American "48 hours after the first 7.00 a. m., etc.", and it is apparent how the Chinese car saves from four to five days right there. On one line, the Shanghai-Nanking, free time allowed is only six hours. But if unloading has not been commenced within four hours after placement, the car is "shunted" (switched) to the "go-down" (warehouse) and unloaded by station forces, costs being added to freight charges. Right is reserved to add, still, a storage charge of 5 cents per ton per day on these goods in the "go-down." This may seem like heroic treatment, but it frees the cars.

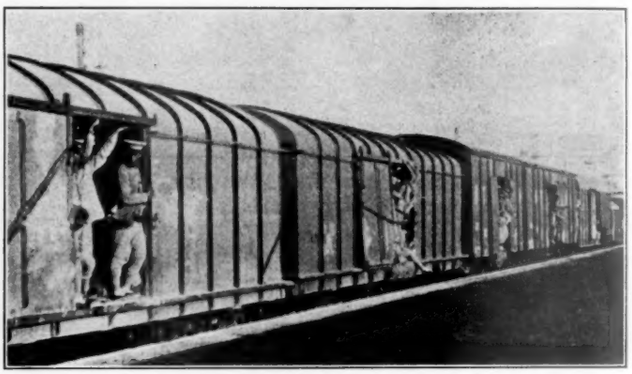
The demurrage charge perhaps is secondary in importance to the brevity of "free-time allowance." However, when it is contrasted with the cost of labor, it appears much higher than when mere rates are named. The rate varies among the several lines, and is based as a rule on the capacity of the car. The rate per ton per day ranges from 15 cents (Mex.) per ton capacity to 50 cents. Thus at the lowest rate, a 40-ton car would take a penalty of $6,—enough to hire ten coolies all day,—and on the Peking-Mukden it is $20 per day. It is customary to make some allowance for particularly bad weather, but, in spite of devoted missionary effort these many years, commercial China knows little about Sunday. It is evident therefore that Chinese cars are not likely to be used for warehouses.

No Surplus Equipment

It should not be overlooked also, that the car supply of Chinese railroads has not been designed to meet "peak load" conditions. Hence the average performance is not dragged down by an extravagant surplus of idle cars during long slack seasons. In fact there is a car shortage in China. It attracts little attention for it is the normal condition. Many of the scandals, little and big, local and international, grow out of this condition. But, nevertheless, this shortage helps produce a great record of car performance. It carries the freight offered at a minimum of investment cost. But how much does it repress commerce? That's another question.

To the American shipper under peace conditions these rules of the Chinese railways would seem intolerable. But the Chinese merchant has known no different, and he contrives to get along very well. It is true, of course, that the wants of Chinese villagers are still so elementary that most localities come very close to being self-sustaining. This fact favors carload business—not more than two per cent of the total tonnage being less than carload. So also does it leave a large proportion of the total tonnage to such goods as coal, salt, bricks and grain—heavy commodities. Of the total tonnage handled in 1915, 45 per cent was mineral products. However, this is a lower percentage than in the United States. But the Chinese shipper has developed great capacity for co-operation so as to make up a full car-load. A common method is for the innkeeper at a shipping point to consolidate several small shipments and consign them to the innkeeper at destination, who in turn acts as distributor according to instructions sent him. On some of the lines regular forwarding and receiving companies have developed to perform this service.

Then, too, there has been a concession to the small shipper in the form of a four-wheel truck of 10, 12, or 15 tons capacity. It has draft gear equal in strength to that of larger cars. Its dead weight is about five and a half tons,—not much more in proportion to capacity than in the case of



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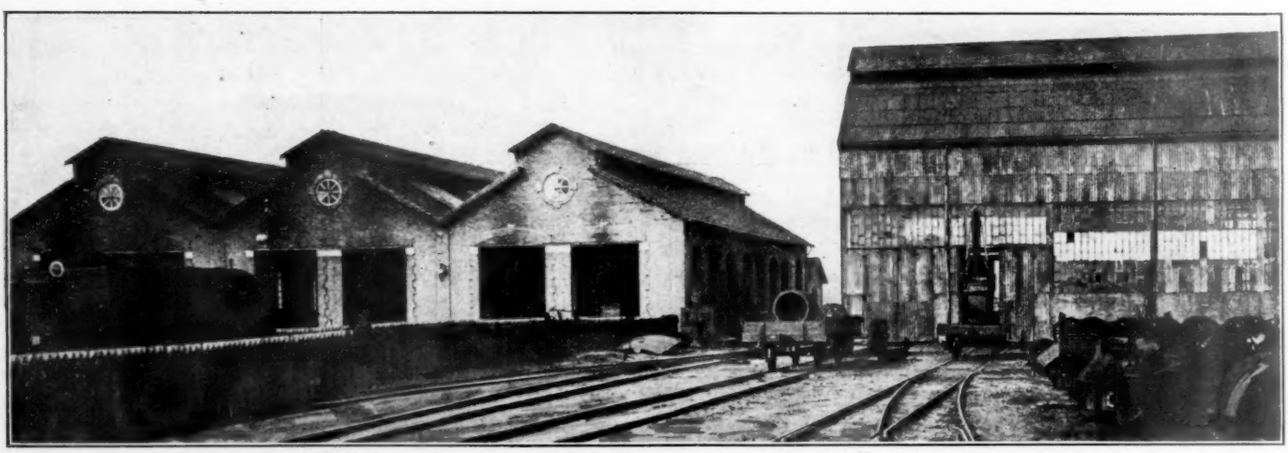
A Troop Train at Tien-Tsin



Photograph, Underwood & Underwood, N. Y.

A Chinese Railway Shop

cars whose capacity is 20 tons. Cars of 30- and 40-ton capacity, however, weigh but little more than the 20-ton cars, and so the use of four ten-ton trucks instead of one 40-ton capacity car would involve the hauling of considerable extra dead weight—but certainly no more than in the case of the large American cars hauled on the average with only about half a load. The ten-ton car helps the average result.

America Can Profit from Chinese Experience

Undoubtedly circumstances aid Chinese railroads to obtain high car performance records, but the principal aid is the Chinese shipper. It should be evident to American shippers that the number of cars on American railroads cannot be increased much during the war. The alternative

Photograph from Underwood & Underwood, N. Y.

A Scene at Hankow on the Pekin-Hankow Railroad

is to get maximum service from the supply at hand. Chinese experience shows that greater service can be obtained. The methods are not inapplicable to American conditions if shippers will make up their minds to it. To change will involve some hardship, but all will share alike. It would appear that American shippers are now suffering hardships. They have merely a choice of them. Leisurely free-time, low demurrage rates, and minimum loads have brought a crippling car shortage. Free-time limited to one working day, prohibitive demurrage rates and charges based on maximum loads, will increase the present car effectiveness 50 per cent, and perhaps more. It's up to the shippers. Which will they take?

And if the new rules should make more labor necessary for loading and unloading—well, China can furnish that.

PARAGUAYAN RAILWAY CONCESSION.—In January, 1916, a concession was granted to the Azucarera Paraguaya Co., with sugar factories at Tobicuary, 120 kilometers (75 miles) from Asuncion, for the construction of a branch railway 22 kilometers (14 miles) in length, with a gage of one meter. The first section of 13 kilometers (9 miles) must be completed within two years and the remainder within six years. For a period of 25 years no taxes are to be levied on this concession and all materials, including machinery, tools and spare parts required for the construction and maintenance of the line are to be free from customs duties. In event of sale the government has the option of taking over the railway by paying 20 per cent more than the cost of construction.—*Commerce Report.*

Who Wastes the Fuel?

By Master Mechanic

WHO IS RESPONSIBLE for the waste of fuel? Judging from articles in technical journals, the reports of conventions and even from the remarks of a large number of mechanical officers, the engine crews are almost wholly responsible. But are they?

When the engineman and fireman have been entreated to save coal and cautioned and criticised and sometimes even threatened with discipline if they do not, it is sometimes felt that a disagreeable duty has been performed, and the result should be shown by a great improvement in the fuel record.

I do not wish to relieve the engine crew from their responsibility; no one will deny that the proper interest in, and the study of fuel economy on their part will result in enormous savings when put into practice. But the failure to note the shortcomings of others and continually placing all of the responsibility on these men is not only wrong but it is decidedly detrimental to the service.

Enginemen, firemen and mechanics, in the majority of cases today, are as well read, intelligent and keen, as the officers under whom they serve, and to criticise them because of the amount of fuel burned when they have an engine that should be in the shop, or they have been delayed on the road five or six hours on account of poor meeting points, is not likely to be productive of very good results.

There is hardly anyone in the employ of the railroad, from the president to the water boy, who is not responsible for waste of fuel, and for good measure we might also add a few patrons of the road. How about the higher officers? There is probably no single thing more responsible for the unnecessary consumption of fuel than lack of adequate locomotive terminal facilities. At the present time it may be impossible to procure the necessary money to provide them, but how much thought has been given to this matter in the past, when money was used for less essential purposes? What investment would pay better dividends in northern climates? One only needs to note the number of engines kept fired up outside in zero weather on account of lack of stall room to be convinced of the magnitude of the loss thus sustained, not only in waste of fuel but also in the condition of the power. If officers gave more thought to this matter possibly repairs and improvements would be made in seasonable weather and the applying of new roofs on roundhouses, installation of new turntables, etc., would be done at some other time than between November and April, when in the northern parts of the country the temperature is anywhere from zero to 35 deg. below.

Good water is a great factor in fuel consumption and every additional one-sixteenth inch of scale on the heating surfaces makes its effect felt very quickly on the coal pile. How often is the quality of the water supply given adequate consideration along with the question of easy availability?

Does the superintendent always see that the running time of trains is equalized as much as possible on time cards, so that the old complaint that "we have to go as fast as we can turn a wheel from A to B and the time from B to C is so slow that you are afraid of getting flat spots on the wheels" is not justified? Sometimes there is a good excuse for this variation in speed, but not always. High speed means increased coal consumption.

On the majority of the roads the supervision of engine crews and their education on fuel combustion rests with the road foreman of engines, and there is usually one where there should be three or four, yet little thought is usually given to the necessity of leaving him to attend to this work, when he is wanted to ride an official train or for some other

job outside of his regular duty. Fuel economy will not be a great success when left to itself.

Superintendents do not consider enough the proper distribution of power to obtain the maximum fuel economy consistent with good service. Where coal is under the supervision of the superintendent he does not always take sufficient interest in seeing that it is picked up around coal chutes and yards; or that the coal burned in way cars, flag houses, etc., is charged to proper accounts. While this may not save fuel it at least gives the locomotive some credit.

While not as large a factor as some others, the division engineer can help out in fuel economy by giving proper thought to it when locating side tracks, etc. The reduction of curves and grades is an important factor, and the removal of slow flags as soon as consistent also means the saving of coal. Sawing by on account of short side tracks wastes fuel and every time an engine or train is stopped or slowed down the coal pile is decreased.

Fuel economy propaganda cannot be presented to enginemen very successfully when the master mechanic fails to keep his engines in such condition that they will perform their work successfully and economically. Lame engines, blowing valves and pistons, leaking steam pipes, etc., not only in themselves do not tend to fuel economy but they destroy what little interest in the subject the crew may have felt.

No one person wastes as much coal as the train despatcher, more especially in a single track district. How many despatchers make a study of the profile of the road and are thoroughly acquainted with the grades and curvature at important points on the line? Many a ton of coal has been burned and many a drawbar has been pulled out in doubling out of stations at the bottom of sags, after stopping for orders or to answer messages that could just as well have been delivered or answered at stations where grade conditions were favorable. Frequently messages are sent to trains at unimportant stations, requiring immediate explanation of the cause of a few minutes' delay to a passenger train, when more time is lost in answering than in the original delay. To make up the time thus lost costs fuel. Such messages should either be held for delivery at the terminal or sent to a station where the work to be done will allow sufficient time to answer the message without additional delay to the train.

How much attention does the despatcher give to fuel economy when he knows that a train has a large enough engine to make up any time that may be lost? The train is laid out on any pretext, and then messages sent requiring an explanation of the delay. This refers particularly to single track districts.

Trainmasters can save coal by insisting upon co-operation between engine and train crews, in reporting improper train despatching and in seeing that proper switching is done at terminals so that cars are placed in trains in station order as far as consistent. Every time an unnecessary engine movement or switch is made fuel is being wasted.

Next to the engineer and fireman the road foreman of engines is usually considered the person most responsible for the economical use of fuel, where there is no organized fuel department, and if allowed the necessary time properly to supervise the work of the crews, he should be able to obtain results. To do this he must be able personally to demonstrate the truth of his teachings and be possessed of such a personality that he may secure the good will and co-operation of the men.

The roundhouse foreman's part in fuel conservation is almost second to none and the care and supervision given by him to see that repairs to engines are properly made, that superheater and other flues are cleaned every trip, boilers washed, flues expanded, grates cleaned, and engines fired up at the proper time, will not only save many tons of coal but avoid engine failures. Roundhouse foremen, especially the night foremen, should be given every possible help and encouragement and no unnecessary criticism.

The list could be continued to show that the mechanic who does an improper job, the agent who causes an unnecessary switch, the switching crew that works on a switch and must make a reverse movement every time a switch is made, the track force who leaves out an unnecessary slow flag and the car repairer that allows a car to go out with dragging brakes or an improperly packed journal box is guilty of fuel waste as well as the fireman who shovels coal into the firebox unnecessarily.

What can be done to better these conditions? The following suggestions will help, if complied with.

Every effort should be made to get the best water available. This will not only save fuel but the boilers as well. Money spent in this manner is like "bread cast upon the waters" but instead of waiting many days the returns will begin to accrue at once.

If a large amount of coal is to be stored, proper measures should be taken to prevent its deterioration either by submergence or other means. Coal records will suffer when coal is used that has been allowed to lie out of doors and deteriorate for two years or more.

Adequate locomotive terminal facilities should be provided and construction of buildings or their repair should not be undertaken in extremely cold weather.

More attention should be given to train movements, the time equalized as much as possible, and unnecessary stops eliminated. The cross-hauling of cars should be checked.

Power should be given repairs when needed and sufficient roundhouse forces provided to keep it in the best serviceable condition.

Enough supervision should be provided properly to check the use of coal by engine crews and to instruct them in the principles of combustion.

The distribution of fuel should be closely checked and coal burned in other ways than by the locomotive should be charged to the service in which it is used.

Coal should be checked both for quality and weight. While possibly there may be no such thing as poor coal, yet no one will deny that some coal is better than other coal.

All concerned in the waste of fuel should be held as responsible as the men actually using and handling it. The work of train despatchers, roundhouse forces, yard and station men and even of car repairers should be checked as closely as that of enginemen.

Tying up power at outside points where there are no housing facilities should be discontinued, especially during cold weather. This practice wastes coal and usually ends in an engine failure the next trip, due to the dirty fire.

Regular engines should be maintained where it can be done consistently.

Cars and engine tanks should not be overloaded. A pound of coal burned in the firebox will do more work than 10 pounds spilled on the right of way.

Passing tracks should be of sufficient length to accommodate the greatest length of train which is run in the district and grades reduced where possible to do so.

The actual weight of the coal placed on engine tanks should be given. It is hard to convince an engineman that he has burned an unreasonable amount of coal when there is only a guess made as to the amount of coal delivered.

Trains should be given thorough inspection for air leaks and dragging brakes, and the packing in journal boxes given attention.

A periodical check made by some disinterested officer or outsider with no bias either for or against any department or class of labor should be beneficial.

Parties held responsible for the economical use of fuel should be given the necessary authority, as authority and responsibility cannot be separated.

Pennsylvania System Rejects Screw Spikes

Action Taken After Exhaustive Experiments at Two Points for a Period of Eight Years

THE PENNSYLVANIA SYSTEM has been conducting an exhaustive series of tests of screw spikes and tie plates under heavy traffic for the past eight years. The details of these experiments and the conclusions which have been reached have been made public in a report prepared by W. C. Cushing, chief engineer maintenance of way, Southwest System, Pennsylvania Lines, published in bulletin No. 200 of the American Railway Engineering Association from which the following data have been abstracted. These experiments were made under the direction of a committee of engineers from the various lines of the Pennsylvania System.

The committee, at its first meeting, June 16, 1908, decided that, in view of the fact that the screw spike experiments must be made on curves where tie plates are used and also on softwood ties requiring tie plates, it would be desirable to experiment with the various forms of tie plates in conducting the screw spike test.

The locations selected for the experimental track were in No. 1 eastward passenger and freight track east and west of Birmingham, Pa., on the Middle division of the Pennsylvania Railroad, and in No. 1 westward passenger and freight track east of Wooster, Ohio, on the Eastern division, of the Northwest System, Pennsylvania Lines West.

After a very thorough investigation of the experience of foreign railroads with screw spikes, plans were prepared for seven types of rail fastenings, four of which were to be used on oak and pine ties, and two (without tie plates) to be used on oak ties only. One type was eliminated. All ties were to be creosoted and one-half of each section was to be laid with cow-hair pads. Detailed instructions for the installation and inspection of the experimental track, and blanks for reports were also prepared.

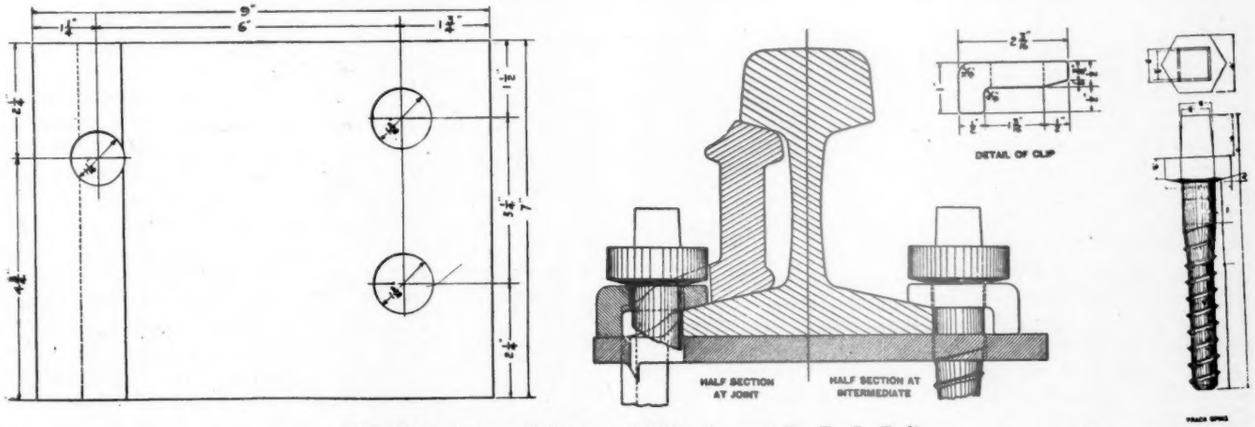
During November and December, 1909, and January, 1910, the track at the adopted location east and west of Birmingham, Pa., was prepared by putting in fresh ballast, preparing for thorough drainage, etc., and 10 sections of experimental track, each 1,000 ft. long, were installed. During the last eight months of 1910 the same was done east of Wooster, Ohio. In less than a month after installation the cow-hair pads began to be squeezed out from under the tie plates in the Birmingham track and in six months they were nearly all out.

Previous to installing the test sections holes were bored in the ties for the screw spikes, using steel templets to mark their positions accurately. The holes were bored one inch deeper than the penetration of the screw spikes. In oak ties the diameter of the holes was the same as that of the core of the screw spikes while in pine ties this diameter was 1/32 in. less than that of the core. A true surface was provided for the seat for the tie plates before they were bored. Those tie plates, which were held to the tie by screw spikes independent of those engaging the rail, were closely fastened to the ties with the outside screw spikes turned home. The other screw spikes or clips were then attached or shipped separately as was most desirable. No holes were bored for the standard cut spikes. Screw spikes were not permitted to be driven into the ties but it was required that they be placed by the use of the proper wrenches.

Performance of Each Type at Birmingham

TYPE 1A—Standard track with standard 7 in. by 9 in. by 7/16 in. tie-plates and standard nail spikes; oak ties.

No deterioration of any kind was evident for one year and eight months, when the ties began to show cutting under the outer edge of the tie plates on the inner side of surves. This cutting continued, and one year later it was found necessary in some places to adze the ties under the low rail. On 52 of the ties the plates were at that time embedded 3/8 in. or more, and after 3 years and 7 months 69 ties were cut to this extent or more. After four years' and three months' service, 87 of the ties were cut 3/8 in. or more, nearly all of the ties on the curve had been adzed, and 10 ties were removed on account of wear. Otherwise the track was in good condition until its elimination from the experiment in November, 1914, on account of the rail being changed from 100 lb. to 125 lb. section, which involved changing the tie plates.



Tie Plate, Screw Spikes and Clips for 100-lb. P. S. Rail

TYPE 1B—Standard track with standard 7 in. by 9 in. by 7/16 in. tie plates and standard nail spikes; pine ties.

After six months' service, tie plates began cutting perceptibly into the ties, indicating that the 7 in. by 9 in. tie-plates were too small for softwood ties and, as cutting was much more pronounced under the outer edge of the tie plate, it was evident that the tie plates should have outer ends longer than the inner. Accordingly the standard plan of tie plates on the Lines East was changed in January, 1911, increasing the length 3/4 in. at the outer end. A similar change

had previously been made on the Lines West, the increase being ½ in. It was apparent that a 7 in. by 9 in. tie plate was utterly inadequate for pine ties or even for oak ties under the heavy traffic at this point and that pine ties would not be suitable for such locations, even with very large tie plates. After a service of 2 years and 11 months 232 of the ties (about 40 per cent) were cut ⅜ in. or more, and in 3 years and 7 months, 267 ties were cut this amount. After four years' and three months' service nearly all the ties on the curve had been adzed under the low rail, 175 had been removed on account of wear and 196 others were cut ⅜ in. or more. After 5 years and 5 months 359 ties were cut that amount. In May, 1915, 92 ties were renewed on account of being cut by plates, making a total of 267 renewed for this cause; 48 other ties were renewed in June, 1912, on account of damage from derailed equipment, at which time 257 other ties were cut. Otherwise the track continued in good condition until the conclusion of the experiment, July 31, 1915.

TYPE 2—Standard track, standard nail spikes, no tie plates; oak ties.

After five months the cutting of the ties by the rail was noticeable, but the penetration was only about 3/16 in. after 1 year and 7 months' service, and ¼ in. to ⅜ in. after 2 years and 4 months. After 2 years and 10 months, 72 ties were cut ½ in. or more, and 161 ties were cut ⅜ in. to ½ in. after a service of 3 years and 4 months, when (April, 1913) this section was eliminated from the experiment owing to the failure of Type 3 with which it was being compared. The canting of the rail was slight, the gage widening only 3/16 in.

TYPE 3—Screw spikes with rolled clips; no tie plates; oak ties.

The rail cut into the ties in the same manner, but not quite as fast as in the case of Type 2. After one year about a dozen of the clips were loose. In two years and four months 29 ties were cut ¼ in. to 5/16 in., 293 clips and 41 spikes were loose, and after 3 years 4 months 451 clips and 114 spikes were loose. At this time (April, 1913) the rail had penetrated the ties a distance equal to the thickness of the base of the rail at its edge, which permitted the rail to slip under the clips, thus widening the gage. This type was therefore eliminated from the experiment.

TYPE 4A—Screw spikes, rolled clips, standard 7 in. by 9 in. by 7/16 in. tie plates; oak ties.

During the first three months of service 132 of the clips became loose, and in spite of frequent tightening of the spikes, the loosening of the clips increased, and their rattling was quite perceptible in riding over this section of track. After one year the cutting of the tie plates into the ties at the outer edge was noted. After one year and seven months 500 clips and 30 of the screw spikes were loose and could not be tightened. In October, 1911, this type was eliminated, there being 993 loose clips and 60 loose spikes at that time. The tie plates cut into the ties at the outer edge on the inner side of the curve to a slight extent, there being no noticeable difference in this respect between this type and Type 1a.

TYPE 4B—Screw spikes, rolled clips, standard 7 in. by 9 in. by 7/16 in. tie plates; pine ties.

The behavior of this type was precisely similar to that of Type 4a except that the plates cut more rapidly into the ties and the screw spikes loosened more quickly. This type was eliminated at the same time as Type 4a (October, 1911), there being 986 loose clips and 181 loose spikes at that time and 185 of the ties being cut by plates ⅜ in. or more.

In July, 1911, photos were taken of ties taken from Birmingham experimental track types 4a and 4b, and split at the spike holes. These photos showed that while the holes had been bored one inch below the bottom of the spike, the screw threads in the wood were entirely destroyed, there being no appreciable difference between the oak and pine ties.

TYPE 6A—Screw spikes with malleable iron tie plate chairs 7 in. by 13 in. by 2 in.; bolts and clips; oak ties.

After 3 months' service 35 of the screw spikes were found to be slightly loose, and after 18 months the cutting of the plates into the ties became perceptible at the outer edge of the plates under the inner rail on curves. This type of track shows a higher cost for lining than the others because the bolts must be loosened and retightened after the track is thrown to line. It was noted that the feet of the rail anchors bore against these tie plates and it was thought that special rail anchors should be designed for types 6a and 6b that will bear against the tie. After a service of 2 years and 3 months 20 ties were cut about ¼ in. on the outer edge of tie plates under the low rail, and 32 of the screw spikes were loose. In 3 years and 5 months 166 ties were cut ⅜ in. or more and 416 spikes and 24 clips were loose. In February, 1914 (4 years and 1 month service), the cutting of the ties at the outer edge of the plates and the resultant canting of the rail was found to have widened the gage to 4 ft. 9¼ in. at some points with full section rail. It was evident that this particular design was not properly balanced to resist the overturning forces which caused the canting of the rail and cutting of the outer edge of the tie plates into the ties and it was thought that nothing could be gained by further experiment with it on sharp curves and that a new tie plate of similar style or type, with more bearing area outside of the rail than inside, should be designed. It was accordingly decided that where the rail was canted sufficiently to make the gage 4 ft. 9¼ in. with full section rail these tie plates should be replaced with standard tie plates, which was done on 200 ties; 965 of the spikes and 64 of the clips were loose at this time (February, 1914). The whole section was eliminated in May, 1914.

TYPE 6B—Screw spikes, with malleable iron tie plate chairs 7 in. by 13 in. by 2 in.; bolts and clips; pine ties.

The same conditions of cutting of ties and canting of rail as noted under Type 6a prevailed on this section except that the cutting was more rapid into the pine ties of this type of track. After a service of 2 years and 3 months 135 of the ties were cut ¼ in. or more, and a few as much as ½ in., and 11 spikes were slightly loose. In 3 years and 5 months 301 ties were cut ⅜ in. or more and 89 spikes and 28 clips were loose, and in 4 years and 1 month 374 ties were cut ⅜ in. or more and 423 spikes and 96 clips were loose. The same comment applies as under Type 6a regarding the higher cost of lining and rail anchors bearing against tie-plates. This section was eliminated from the experiment at the same time as the other (May, 1914). Another effect of the widening of the gage was that the rail wore out about twice as fast on the 6 deg. curves with Types 6a and 6b, as on the 6 deg. curves on Types 1a and 1b (standard tie-plates). When this excessive rapidity of wear was observed, samples of the rail were analyzed and found to be of normal composition, hence the excessive wear was evidently due to wide gage. A total of 423 spikes and 96 clips were loose on Type 6b in February, 1914.

TYPE 7A—Screw spikes with rolled steel tie plates 7 in. by 13½ in. by ⅝ in.; oak ties.

After eight months' service a few of the screw spikes (both plate spikes and rail spikes) were found to be loose, and after 2 years and 4 months the tie plates were observed to be cutting into the ties, eight ties being cut about ¼ in. Nineteen of the spikes were loose at that time. Six months later (October, 1912) 36 of the spikes were slightly loose and 19 ties were cut ¼ in. to ½ in. but, as on Type 7b (pine ties) some of the spikes were so loose that they could be extracted with the fingers, the committee decided to try the Lakhovsky split lining. The application of these linings cost 9 cents each in oak ties and 7 cents each in pine ties. A total of 459 of these devices were applied on Section 7a and 207 on Section 7b during 1913; but they did not prove effective, and the spikes equipped with them soon became loose again. After a service of 4 years and 2 months 139 of these ties were cut ⅜ in. or more and 430 spikes were loose (including 12 of the 459 that had been equipped with

Lakhovsky linings.) It was noted that the cutting of the outer edges of the plates into the ties was canting the rail and widening the gage in the same manner, though not to the same extent, as on Type 6a, owing to the lesser thickness of the tie-plate (5/8 in. as against 1 15/16 in.), but as this form of track can be repaired without difficulty it was decided to continue it, adzing the ties when necessary. All the ties on the curve were adzed under the low rail in September, 1914. It was not found necessary to do any adzing under the high rail. At this time 22 of the 459 spikes which had been equipped with Lakhovsky linings were again found loose and there were 275 other loose spikes. Seven months later, after 5 years and 4 months' service (April, 1915) 281 ties were cut 3/8 in. or more and 482 spikes were loose, including a number with Lakhovsky linings, and in June, 1915, 283 ties were cut and 492 spikes were loose.

In June, 1915, the wooden plug method of re-setting spikes which is extensively used abroad was tried. Locust plugs 1 in. by 1-3/16 in. at the top, 7/8 in. by 1 in. at the bottom, and 5 in. long were used for the rail spike holes and smaller plugs 3/4 in. by 7/8 in. at the top, 5/8 in. by 11/16 in. at the bottom and 3 1/4 in. long, for the plate spike holes, these dimensions bearing the same relation to those of the spikes as the measurements of the wooden plugs used in France bear to the spikes in connection with which they are used. These plugs were driven into the spike holes in ten ties where the spikes had come loose, the holes were re-bored and the spikes re-set. The spikes soon became loose again and a laboratory test was made which showed that the resistance to extraction offered by the screw-spike in the plugged hole was not greater than that of an ordinary nail spike. This type of track was accordingly eliminated in August, 1915, at which time there were 358 loose spikes and 264 ties cut by plates. The ties on the curve were adzed under the low rail in September, 1914, to restore the canted rail to its normal perpendicular position. Seven ties were renewed on this section, four of them on account of original defect and three on acount of wear.

TYPE 7B—Screw spikes with rolled steel tie plates 7 in. by 13 1/2 in. by 5/8 in.; pine ties.

The service afforded by this type was similar to that of Type 7a except that the softer ties naturally offered less resistance to cutting by plates and loosening of spikes. After a service of 2 years and 4 months 17 of the ties were cut 1/4 in. or more and 16 of the spikes were loose. After 2 years and 10 months 63 ties were cut from 1/4 in. to 5/8 in. and 49 spikes were loose, several of the latter, particularly at the joints, being so loose that they could be extracted with the fingers.

At this time the committee considered several methods of resetting the loose spikes, as follows: (1) The square plug was discarded at this time for the reason that it could afford only temporary relief, as the same forces which loosened the spike in the tie would loosen it in the plug. (2) The Thiollier helical lining was not adopted because it cannot be applied to track in service. (3) The Collet trenail possessed the same objection as the square plug, though it might hold the spike somewhat longer, but it has the additional objection that it has a very large diameter and would therefore inflict too much injury on the tie. (4) The Lakhovsky split lining was adopted and 207 spikes were equipped, but in February, 1914, 15 of them were again found loose. At that time 198 ties were cut 3/8 in. or more. In April, 1915, there were 450 cut ties and 582 loose spikes, and in June 541 cut ties and 675 loose spikes. In August, 1915, this type was eliminated. At that time there were 685 loose spikes and 451 ties cut by plates. Five ties were renewed on this section on account of wear.

In the Spring of 1911 the rail on the 6 deg. curves on Types 1a, 1b, 4a, 4b, 6a and 6b was renewed, when the gage returned precisely to that first reported after the track was installed, thus proving that there had been absolutely no lateral movement of the tie plates since installation.

During the first 10 months there were 114 joint bar failures on the Birmingham track, of which one was Keystone insulated, five were standard No. 8a bars, seven had semi-circular slots for screw spikes and 101 had rectangular slots for slips. As this showed conclusively that the deep rectangular slotting for the slips was conducive to the fracture of the bar, the design of clips for Types 3, 4 and 6 was revised to permit the slot to be semi-circular.

In view of the fact that the removal of the malleable iron tie plates (Type 6) necessitated the raising of 78 ties on Section 6a and 45 on 6b about 1 1/2 in. higher than the other ties, and as these ties were scattered throughout the portions of these sections remaining in track, giving the track a very ragged appearance, and also that all the curved portions of these sections were eliminated from the experiment in February, 1914, on account of the widening of the gage, the remainder of the two sections (Types 6a and 6b) were eliminated from the experiment in May, 1914.

Wooster Service Tests

TYPE 1A—Standard track with standard 7 in. by 9 in. by 5/8 in. Goldie tie plates and standard nail spikes; oak ties.

After a service of 2 years and 11 months, the cutting of the tie-plates at the outer edge was quite marked, 10 of the ties being cut 3/8 in. One year and 3 months later 46 ties were cut 3/8 in. or more and in November, 1914, when this type was eliminated on account of the elimination of the corresponding type at Birmingham 52 ties had been cut 3/8 in. or more.

TYPE 1B—Standard track with standard 7 in. by 9 in. by 5/8 in. Goldie tie plates and standard nail spikes; pine ties.

After a service of 2 years and 3 months, the cutting of tie-plates, at outer edge, into the ties was quite marked, 15 of the ties being cut from 1/2 in. to 5/8 in. Six months later 210 of the ties were cut 3/8 in. or more, and after 4 years' service 355 of the ties were cut 3/8 in. or more and two spikes were found broken. In August, 1915, when the experiment was concluded, 440 of the ties were cut 3/8 in. or more and 4 spikes were loose.

TYPE 2—Standard track; standard nail spikes; no tie plates; oak ties.

After 1 year and 9 months' service the cutting of the rail into the ties became perceptible, but none of them were cut as much as 1/4 in. At two points it was noticed, at this time, that the rail had pushed the spikes back a little, apparently due to irregularity of surface. The cutting of the rails into the ties continued, but the gage was not seriously affected, the maximum being 4 ft. 8-11/16 in. after a service of 2 years and 3 months. In April, 1913, when this type was eliminated after a service of 2 years and 9 months on account of the failure of Type 3 in the experimental track at Birmingham, the track was in good condition, none of the ties being cut as much as 3/8 in. and only one spike being found standing above the base of rail.

TYPE 3—Screw spikes, rolled clips; no tie plates; oak ties.

After one year's service four of the clips were found loose, and 9 months later there were 259 clips and 37 loose spikes. After a service of 2 years and 3 months there were 328 loose clips and 69 loose spikes, and in April, 1913 (6 months later), when this type was eliminated on account of the failure of the corresponding type at Birmingham, there were 421 loose clips and 89 loose spikes. None of the ties were cut as much as 3/8 in. at this time.

TYPE 4A—Standard 7 in. by 9 in. by 5/8 in. Goldie tie plates, screw spikes and clips; pine ties.

This track was installed a year later than the corresponding type at Birmingham, during which time the tendency of the clips to become loose was noticed and a clip of different design having a shoulder to fit against the base of the rail was used. After 7 months' service 50 clips were found loose,

and 3 months later there were 365 loose clips and 28 loose spikes; no cut ties. At this time this type was eliminated on acocunt of the failure of Type 4a at Birmingham.

TYPE 4B—Standard 7 in. by 9 in. by 5/8 in. Goldie tie plates, screw spikes and clips; pine ties.

After 7 months' service 175 clips and 7 spikes were found loose. The improved clip was used on this type as well as on Type 4a. After 10 months' service there were 405 loose clips and 35 loose spikes but no cut ties. This type was then (October, 1911) eliminated on account of elimination of corresponding type at Birmingham.

TYPE 6A—Screw spikes; malleable iron tie plate chairs 7 in. by 13 in. by 2 in. bolts and clips; oak ties.

After a service of 1 year 11 months the tie-plates were observed to be cutting slightly into the ties and 4 screw spikes were found loose. Six months later there were 16 loose spikes and 8 loose clips. After a service of 3 years and 1 month 14 of the ties were cut 3/8 in. or more and 195 spikes and 40 clips were loose. In May, 1914, when this type, after 4 years' service was eliminated on acocunt of the failure of corresponding type at Birmingham there were 161 loose spikes and 31 cut ties.

TYPE 6B—Screw spikes, malleable iron tie plate chairs 7 in. by 13 in. by 2 in.; bolts and clips; pine ties.

After a service of 1 year and 5 months the cutting of the tie plates into the ties was noted, but although considerably more than on Type 6a (which had been in service 7 months longer) it was not over 1/8 in. Six months later 7 spikes and one clip were loose. After a service of 2 years and 7 months 89 ties were cut 3/8 in. or more and 168 spikes and 20 clips were loose. In May, 1914, when, after 4 years' service, this type was eliminated, on account of the failure of the corresponding type at Birmingham, there were 32 loose spikes and 240 cut ties.

TYPE 7A—Screw spikes; rolled steel tie plates 7 in. by 13 1/2 in. by 5/8 in.; oak ties.

After a service of 1 year and 10 months the cutting of the tie-plates, at outer edge, into the ties was noted and 5 spikes were loose. Six months later 19 spikes were found loose. After a service of 3 years only one tie was cut as much as 3/8 in. At this time 182 spikes were loose. After 4 years' service there were 16 ties cut 3/8 in. or more and 75 spikes were loose. In August, 1915, when the experiment was concluded, 21 of the ties were cut 3/8 in. or more and 203 spikes were loose.

TYPE 7B—Screw spikes; rolled steel tie plates 7 in. by 13 1/2 in. by 5/8 in.; oak ties.

After a service of 1 year 5 months the cutting of the tie plates, at the outer edge, into the ties was noted and 8 spikes were found loose. Six months later 7 of the ties were cut over 1/4 in. and 8 spikes were found loose. After a service of 2 years and 7 months 52 of the ties were cut 3/8 in. or more and 50 spikes were loose, and 1 year and 1 month later 149 of the ties were cut 3/8 in. or more and 37 spikes were loose. In August, 1915, when the experiment was concluded, 208 of the ties were cut 3/8 in. or more and 124 of the spikes were loose.

The table below shows that both the annual cost and the cost per million tons traffic are less for the nail spike than for the screw spike. In comparing the costs of Types 2 and 3 with the others, it must be remembered that these two types are on straight track and oak ties and would not be suitable for curves or softwood ties.

Type	First Cost			*Annual Cost			†Cost per million tons traffic		
	Brghm.	Wstr.	Avge.	Brghm.	Wstr.	Avge.	Brghm.	Wstr.	Avge.
1a	$896	$1,151	$1,023	$316	$333	$324	$5.48	$15.64	$10.56
1b	912	1,218	1,065	355	350	352	6.31	16.38	11.39
2	765	860	812	344	274	309	6.00	12.56	9.28
3	1,018	1,156	1,087	443	350	396	8.05	16.60	12.32
4a	1,286	1,627	1,456	940	452	596	17.96	21.67	19.81
4b	1,181	1,676	1,428	876	466	671	16.90	22.26	19.58
6a	2,384	2,457	2,420	757	607	682	14.74	31.74	23.24
6b	2,361	2,450	2,405	759	592	675	14.80	30.98	22.89
7a	1,556	1,477	1,516	460	388	424	8.25	19.23	13.74
7b	1,473	1,462	1,467	435	390	412	7.84	19.35	13.59
Total	$13,832	$15,536	$14,684	$5,685	$4,202	$4,943	$106.33	$206.41	$156.37
Average	$1,383	$1,554	$1,468	$569	$420	$494	$10.63	$20.64	$15.64

*Interest at 6 per cent and taxes at 1 per cent (both on first cost in track), plus cost of maintenance, plus annuity, which, at 6 per cent compound interest will amount at end of life to first cost in track less salvage.
†Including installation and maintenance.

Conclusions

1. Screw spikes have no advantage over nail spikes. When used with clips without tie plates, the cutting of the rail into the tie permits the rail to slip under the clip, thus widening the gage.

2. No satisfactory device is known for resetting screw spikes after the thread in the wood has been destroyed. When some of the screw spikes in the Birmingham experiment became so loose that they could be extracted with the fingers, the committee, after considering the several devices for securing screw spikes, selected the Lakhovsky split lining and 666 of these devices were applied to loose screw spikes, at a cost of 6.82c. each for material and 9c. for labor in oak ties or 7c. in pine ties. This device did not prove effective, as the spikes soon became loose again by turning back. It seems evident that there is not sufficient friction between the metal surfaces of the screw and the lining to prevent the spike from turning. The hardwood plug method, which is extensively used abroad, was next tried, using locust plugs of the same shape and size with relation to spike as the wooden plugs used in France. This method was also unsuccessful, the spikes soon becoming loose again. A laboratory test of 32 screw spikes in plugged holes, and 12 standard nail spikes driven in oak ties in the ordinary way, showed that the average resistance to extraction was the same for the screw spikes as for the nail spikes, viz., 5,000 lb. At least a part of the plug was always extracted with the spike. The Collet trenail, which consists of a large hardwood plug threaded on the outside and screwed into the tie, was not considered advisable on account of the injury to the tie by boring holes of such large diameter as is necessary. The Tenax lining was discarded as it is similar to the Lakhovsky and has the same objections. The Thiollier helical lining was considered but not adopted for the reason that it cannot be applied to track in service. It was also thought to have the same objection as the Lakhovsky, viz., that the metal surfaces would not possess sufficient friction to prevent the screw from turning back.

3. The first cost and the maintenance cost of track equipped with screw-spikes are both considerably in excess of those of track equipped with nail-spikes, as shown in detail in statement of annual cost of maintenance of Birmingham and Wooster experiments. The average first cost, at Birmingham and Wooster, of ties and rail fastenings for 1,000 ft. of track with tie plates and nail spikes was $1,044, while that of similar track with screw-spikes was $1,782, or an increase of 71 per cent. The universally admitted higher

first cost of screw-spike track can only be justified by a corresponding decrease in the cost of maintenance. Such a decrease was not effected in this experiment; on the contrary, the average annual maintenance cost of the nail spike track was $338, and that of the screw-spike track $593, or an increase of 75 per cent. Where tie plates were not used (which in heavy service tracks is of course practicable only on straight track on account of the rapid cutting of the rail into the ties on curves) the same relation obtained, though in lesser ratio, the first cost of the nail-spike track being $812 and that of the screw-spike track $1,087, an increase of 33 per cent; the maintenance of the former $309 and that of the latter $396, an increase of 30 per cent. While derailed equipment has not at any time during the experiment damaged the track sufficiently to throw it out of service, thereby necessitating quick repairs, our record of installation of the screw spike track indicates that in such a case the time required to repair screw spike track would be more than 60 per cent greater than would be required for nail spike track, with the same number of spikes and tie plates of similar pattern, even if ties already bored for the screw-spikes were at hand. In the event of an accident detroying any considerable stretch of track, the avoidance of the delay to traffic which would be occasioned by the excess time required to make repairs with screw spikes would justify the use of nail spikes for temporary repairs, and the subsequent application of screw fastenings, with the waste of material involved, would greatly increase the cost of repairing track after wrecks.

4. Cow-hair pads as applied in this test have no value as a protection for the tie, as they were quickly squeezed out from under the tie plates where the traffic was heavy.

5. The 7 in. by 9 in. by 7/16 in. plate is inadequate for pine ties, or even for oak ties, under the heaviest traffic on the Pennsylvania Railroad, and loblolly or sap pine ties are not suitable for such traffic even with very large tie-plates. The maximum load sustained by a tie plate under 100-lb. rail is about 45 per cent of the load imposed by the wheel and, under our heaviest equipment (including dynamic augment and impact), is about 26,000 lb. on tangents and the outer rail of curves, and 36,000 lb. on the inner rail of sharp curves.

6. While the 7 in. by 9 in. by 7/16 in. tie plates were found too small under heavy traffic, it is not determined whether the 7 in. by 13½ in. by ⅝ in. tie plates or the specially designed wrought- and cast-iron tie plates of greater area and thickness, for the more uniform distribution of the load, will prove economical and save enough in the less cutting of the tie to pay for the additional cost. The cost of maintenance with screw spike fastenings and 7 in. by 13½ in. by ⅝ in. tie-plates is greater than with nail fastenings and 7 in. by 9 in. by 7/16 in. tie-plates.

7. Tie plates when flat and symmetrical cut more rapidly into the tie at the outer edge, thus canting the rail. They therefore should be so designed as to bring the line of thrust as near the center of the plate as practicable.

8. When necessary to slot joint bars to permit the use of clips the slots should be semi-circular in shape, as large rectangular slots weaken the joint bars, causing breakage.

When the committee inspected the screw-spike track on the Delaware, Lackawanna & Western and the New York, New Haven & Hartford, the maintenance of way officers of these roads stated that screw-spikes were giving entire satisfaction and had been adopted as standard. It should be borne in mind, however, that new screw spike track was compared with ordinary nail-spike track, and it is profitable that, if a section of the latter had been laid new at the time of the installation of the screw spike track, its performance would have been as satisfactory as, and its maintenance cost less than, that of the screw spike track, as was the case at Birmingham and Wooster.

We are advised that the daily traffic over the screw spike track on the Delaware, Lackawanna & Western is about 71,000 tons, and on the New York, New Haven & Hartford about 83,000 tons. The traffic on the experimental track at Birmingham averaged 140,000 tons per day, and at Wooster 53,000 tons per day. As the tonnage at Birmingham is about twice that on the Lackawanna and New Haven roads, it is probable that when the tonnage on the latter roads reaches the total carried by the Birmingham experimental track their results will not be any more favorable than ours to the screw spike.

The screw spike track at Greenwich, Conn., New York, New Haven & Hartford, is now in about the same condition as when inspected by the committee in November, 1913, except that the cutting of the tie plates into the ties has increased slightly; the penetration does not exceed ½ in. Some of the ties show evidence of slight decay, but they all seem good for at least three years' additional service. Most of the screw spikes are standing up from ¼ to ½ in. clear of the rail and a few are up an inch or more (which does not indicate any superiority of the screw over the nail spike). No cases were found where the screw thread in the tie has been destroyed.

The Delaware, Lackawanna & Western is now experimenting with a new fastening in which the tie plate is secured by bolts extending through the tie and a metal plate underneath the tie. This would seem to indicate that screw spikes have not proved altogether satisfactory.

In conclusion, it may be said that throughout this experiment as elsewhere, it has been evident that there is no danger to traffic from failure of ordinary rail spikes either by shearing or extraction, and the question of securing greater holding power by the use of screw spikes is solely a matter of economy, so that in order to justify its use the screw spike must accomplish a reduction in cost of track maintenance sufficient to offset its higher first cost. This result has not been accomplished—in fact, the screw spike has not only been more costly to maintain, but also less reliable than the nail spike, and while it holds better at first, owing to its greater initial resistance to extraction, it becomes entirely loose under continued raising by the undulating action of the rail. The nail spike under similar circumstances still retains a very considerable portion of its holding power.

A "Solemn Rite of Circumlocution"

WITH A CAPACITY FOR MUDDLING that would do credit to a peace society, the Senate Committee on Interstate Commerce has amended the Administration Railroad Bill to deprive the President of the power of rate-making, leaving that function with the Interstate Commerce Commission and the state railroad commissions, which now protend to exercise it.

One of the outstanding reasons for the President's seizure of the railroads was the complete breakdown of government by commission. Many of the state boards have been composed of hidebound partisans. The national commission has been dilatory, narrow and unresponsive to changing conditions. If it had been able to grasp the first principles of commercial development or to understand the tremendous responsibilities placed upon it by war, operation by government might never have been necessary.

Rate-fixing by commission has become a solemn rite of circumlocution and evasion. Being without beginning or end, it nearly always leaves something undetermined. Where it is not stupidly obstructive, it delights in half-way measures and postponements. Congress cannot adhere to this bureaucratic system of divided control and no-control without depriving the country of the chief benefits of national operation.—*New York World.*

Transcontinental Rates to Be Increased

THE INTERSTATE COMMERCE COMMISSION on January 30 issued its opinion and order in the Transcontinental Commodity Rate Cases, approving in part and denying in part the applications filed by the carriers for permission to increase rates to the Pacific Coast terminals on account of the commission's decision of June 30, 1917, that water competition does not now justify lower rates to the coast terminals than to intermediate points.

In Transcontinental Rates, 46 I. C. C., 236, the commission found that existing water competition between the east and west coasts of the United States did not justify the maintenance by the rail carriers or water-and-rail carriers of lower rates on commodities from eastern defined territories to Pacific coast points than were contemporaneously maintained on like traffic to intermediate points.

It also found that the maintenance of lower rates via rail-and-water routes through Galveston on barley, beans, canned goods, asphaltum, dried fruits, and wine from California-Pacific coast ports to the Atlantic seaboard than on like traffic from or to intermediate points was not justified. Orders were entered requiring the carriers on or before October 15, 1917, to realign the commodity rates from eastern defined territories to Pacific coast and intermediate points, and the rates via rail-and-water routes through Galveston on the commodities above named from California ports to the Atlantic seaboard to accord with the long-and-short-haul rule of the fourth section of the act.

By amendment to section 15 of the act approved August 9, 1917, it is provided that until January 1, 1920, it shall be unlawful to file increased interstate rates without having first secured from the commission approval thereof.

Under this requirement, the carriers filed on September 21, 1917, Fifteenth Section Application No. 324, and on October 22, 1917, Fifteenth Section Application No. 1399, requesting authority to file certain increased commodity rates from eastern defined territories to the Pacific coast, and, in some instances, to intermediate points. On November 16, 1917, Fifteenth Section Application No. 1822 was filed asking authority to file increased rates on barley, beans, canned goods, asphaltum, dried fruits, and wine from California ports to the Atlantic seaboard via rail-and-water routes through Galveston. By Fifteenth Section Applications Nos. 1077 and 1083, filed October 8, 1917, authority is sought to file increased export rates from various points in the United States to Pacific coast ports on traffic destined to points in Australia, New Zealand, Japan, China, the Philippine and Fiji Islands and in specific instances to Central and South American and Mexican points. By fifteenth Section Application No. 1084, filed October 8, 1917, authority is sought to file increased rates from Pacific coast ports to points in the United States and Canada applicable on traffic originating in Asia, Australia, and, in specific instances, in Central and South America, Mexico, and the Hawaiian Islands.

Hearings respecting the propriety of the proposed increases have been held at New York, N. Y., Chicago, Ill., Portland, Oreg., and Washington, D. C.

The commission does not discuss its reasons, but after considering the evidence offered, both of a general and of a specific character, its conclusion is given as follows:

1. The carriers should be authorized to file the increased rates proposed by the all-rail lines on all the carload commodities embraced in applications Nos. 324 and 1399.

2. The water-and-rail lines via Galveston should be authorized to file the increased carload rates proposed on articles as to which through all-rail rates are not published from group A to the Pacific coast and intermediate points.

3. The Southern Pacific Company should be denied authority to file rates on the 24 items mentioned in the report which are lower than the rates proposed by the all-rail lines, unless corresponding rates are published by that company on all commodities which are adapted to water transportation.

4. The authority sought by the all-rail lines to cancel all of the less-than-carload commodity rates from eastern defined territories to the Pacific coast and intermediate points should be denied, but they should be authorized to file increased rates on less-than-carload commodities to Pacific coast points not higher than the present rates on such commodities to the highest rated intermediate points.

5. The carriers should be authorized to file the increased export rates proposed in their applications Nos. 1077 and 1083 from eastern defined territories to the Pacific coast.

6. The carriers should be authorized to file increased import rates as described in application No. 1084 from Pacific coast ports to eastern defined territories.

7. The water-and-rail lines through Galveston should be authorized to establish commodity rates on barley, beans, canned goods, asphaltum, dried fruits, and wine from all California ports to the Atlantic seaboard not higher than the present all-rail rates.

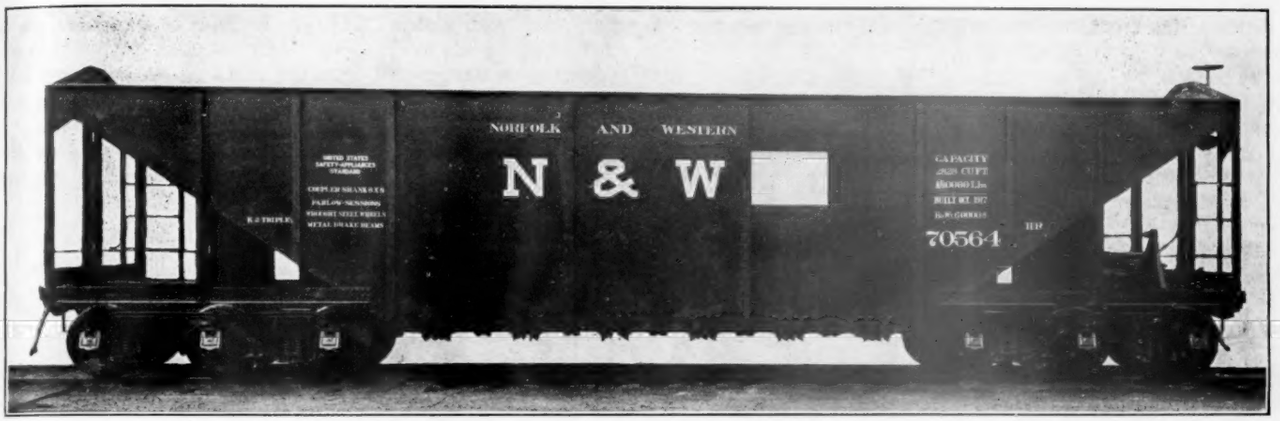
8. The all-rail lines and the water-and-rail lines through Norfolk seeking authority to depart from the provisions of the fourth section in order to meet the competition of the Southern Pacific Company via its water-and-rail route through Galveston have not shown that they are at such disadvantage in respect to this traffic as to justify fourth section relief and these applications should be denied.

Commissioner Aitchison, dissenting in part, said:

The order of the commission entered June 30, 1917, which denied authority to maintain rates on commodities from eastern defined territory to Pacific coast ports lower than the rates contemporaneously in effect on like traffic, to intermediate points, could manifestly have been met by the filing of tariffs reducing the rates to intermediate points to the Pacific coast port level as well as by increasing the coast terminal rates. The carriers have followed the latter course. I am unable to agree with the majority of the commission in the interpretation it placed upon the amended fourth section of the act in Transcontinental Rates. 46 I. C. C., 236, 252, which followed its decision Reopening Fourth Section Applications, 40 I. C. C., 35. The adjustment proposed in the tariffs now before the commission can be justified only by ignoring the last paragraph of the amended fourth section, and this in my judgment can not lawfully be done.

I can not find that as to the commodity rates proposed in schedules B and C, where advances are made either to the intermountain country or to the Pacific coast ports, the carriers have justified the advanced rates as reasonable. In cases before the commission in which certain rates were prescribed as reasonable in and of themselves to various intermountain points, the whole traffic of this section was not before the commission as is now the case, and it by no means follows that rates which might then have been prescribed as reasonable would have been made if the whole Pacific slope traffic instead of a limited portion thereof had been under consideration.

THE AMERICAN MERCHANT MARINE on January 1, 1917, comprised 37,894 vessels of five tons net register or over and had a total gross tonnage of 12,250,000 tons, according to a report of the Census Bureau. The geographical distribution of this gross tonnage was as follows: Atlantic Coast and Gulf of Mexico, 6,509,000; Mississippi River and its tributaries, 1,621,000; Pacific Coast, including Alaska, 1,186,000; Great Lakes and St. Lawrence River, 2,738,000; canals and other inland waters, 196,000. The distribution according to method of propulsion was as follows: Steam and other power, 6,098,000; sail, 1,089,000; unrigged, 5,063,000.



Norfolk & Western Hopper Car of 100 Tons Capacity

The Maximum Revenue Load Is 77 Per Cent of Gross Weight; Single Member H-Section Center Sills

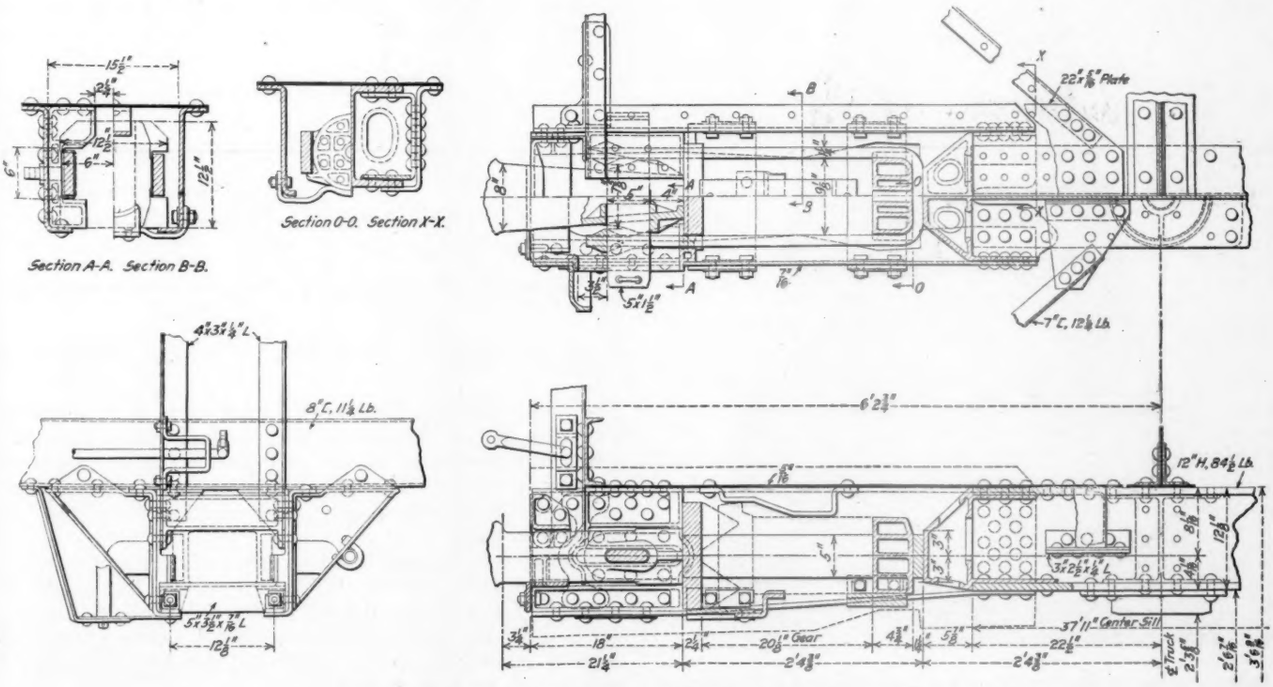
By B. W. Kadel

THE Norfolk & Western recently built at its Roanoke shops and put into service a 100-ton self-cleaning hopper car, of all-steel construction, using six-wheel trucks. This car, known as the Class HR, has been built as a sample from which the advisability of providing larger quantities of this type of car may be determined.

The design of the car follows previous designs of Norfolk & Western hopper-bottom cars in that the drop doors are arranged in pairs extending across the car from side to side. Six pairs of doors are used, giving a door opening approximately 19 ft. 6 in. long. Each pair of doors may be dropped independently of the others.

The center sill of the car is composed of a Bethlehem 12-in., 84½-lb. H-section and extends slightly beyond the bolsters at each end of the car, where it is milled off to exact length and a true surface. Pressed-steel draft sills are spliced to the center sill by means of a steel back stop casting and top and bottom cover plates. The draft gear stops against this casting in buffing and the back stop casting is arranged to directly abut the end metal of the H-section, so that all the buffing load is delivered to the center sill without depending on rivets for this purpose.

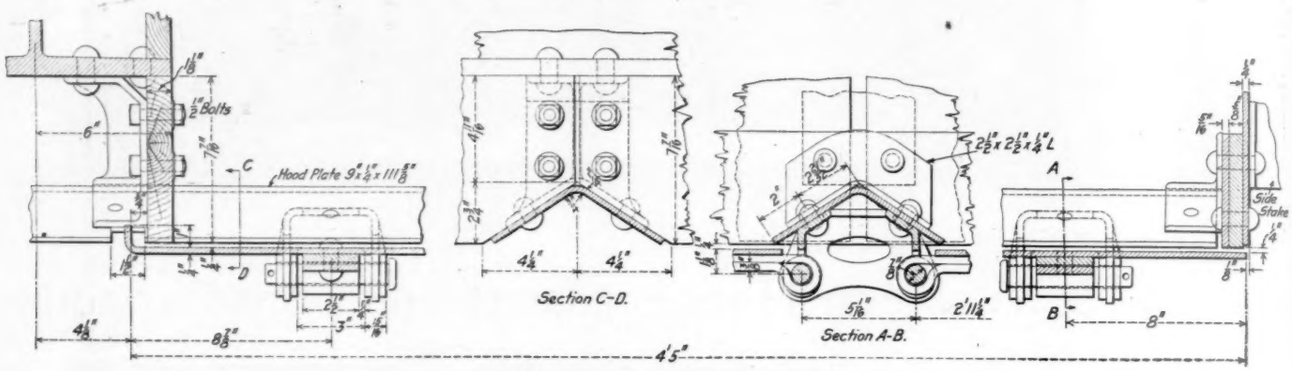
The draft sills are made of 7/16-in. steel plates, flanged, and are tapered from 12 in. in depth at the rear to 15 in. in



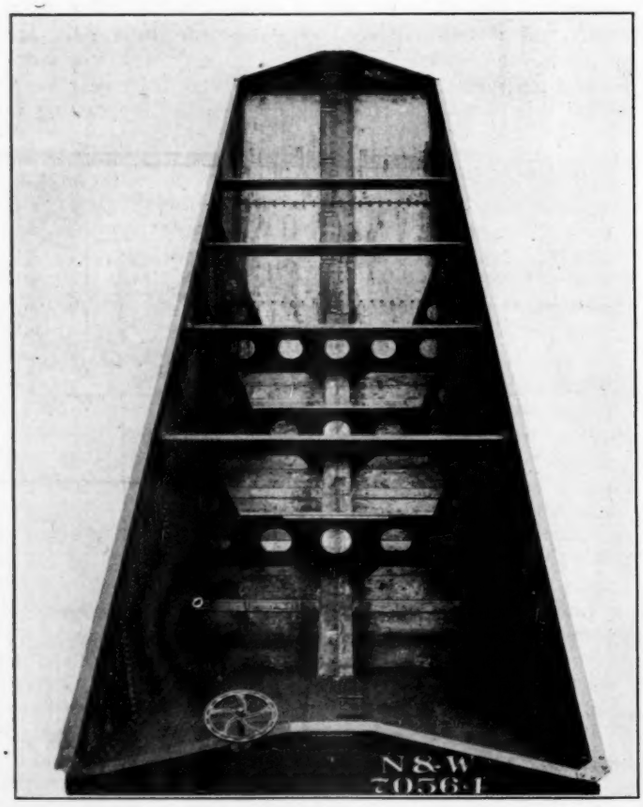
Details of the Draft Gear and Draft Sill Construction

depth at the front end and are spaced 15½ in. between the webs.

The Farlow one-key draft attachments are used. The cheek plates are riveted to the inside faces of the draft sills and form the stops for the front follower in pulling. The yoke is laid horizontally and is continuous. The buffing load is transmitted through the rear end of the yoke directly to the back stop casting. A 1½-in. by 5-in. key is used for connecting the coupler to the yoke, and it will be seen from the draft gear layout that an exceptionally large bearing surface has been provided between the key and the yoke and between the key and the coupler. The key has been relieved of all bending stresses by allowing the outward extensions of the back key bearing on the coupler to overlap the inside extensions of the front yoke bearing.



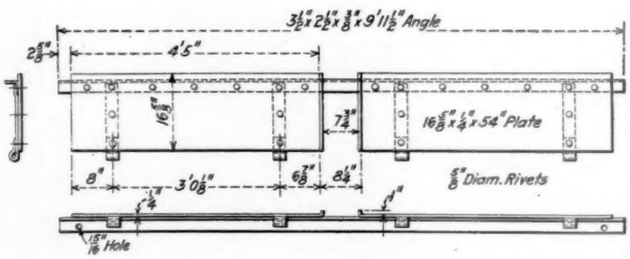
Details of the Door Construction



Interior View of the Car Showing the Transverse Diaphragm Members

The car is equipped with Sessions type "K" friction draft gear, and the coupler used is the M. C. B. 6-in. by 8-in., type "D," with a shank 21¼-in. long. For a carrier iron a 5-in. by 3½-in. by 7/16-in. angle is used. This is supported upon flanges cast from the cheek plates and is held in place by two bolts through the vertical flange of the angle. The weight of the coupler is carried directly on the cheek plate shelves, upon which rests the horizontal flange of the carrier, and the bolts merely keep it in place. The coupler limit stops are formed by turning up the horizontal leg of the angle iron at the ends. By this arrangement removing the carrier iron also removes the limit stops and the yoke can then be drawn out of the end of the coupler pocket.

The car is built up of plates and structural shapes, the minimum plate thickness being ¼ in. Three diaphragms or transverse plate girders are placed across the car to support the center sill and transfer the weight of the lading to the sides of the car. At these diaphragms are placed inside side stakes and wing plates are also carried up from the diaphragms to a point near the top coping angle to stiffen the sides of the car. Midway between the diaphragms are placed outside side stakes of Carnegie M-24 cross-tie section. The splices in the side sheets are made at these stakes. Cross-ties of 5-in. I-beam section are placed across the coal-space near the top of the car in the same transverse planes as the side stakes. The side stakes support the car against the cradle of the car dumper, over which the car must be handled at times.

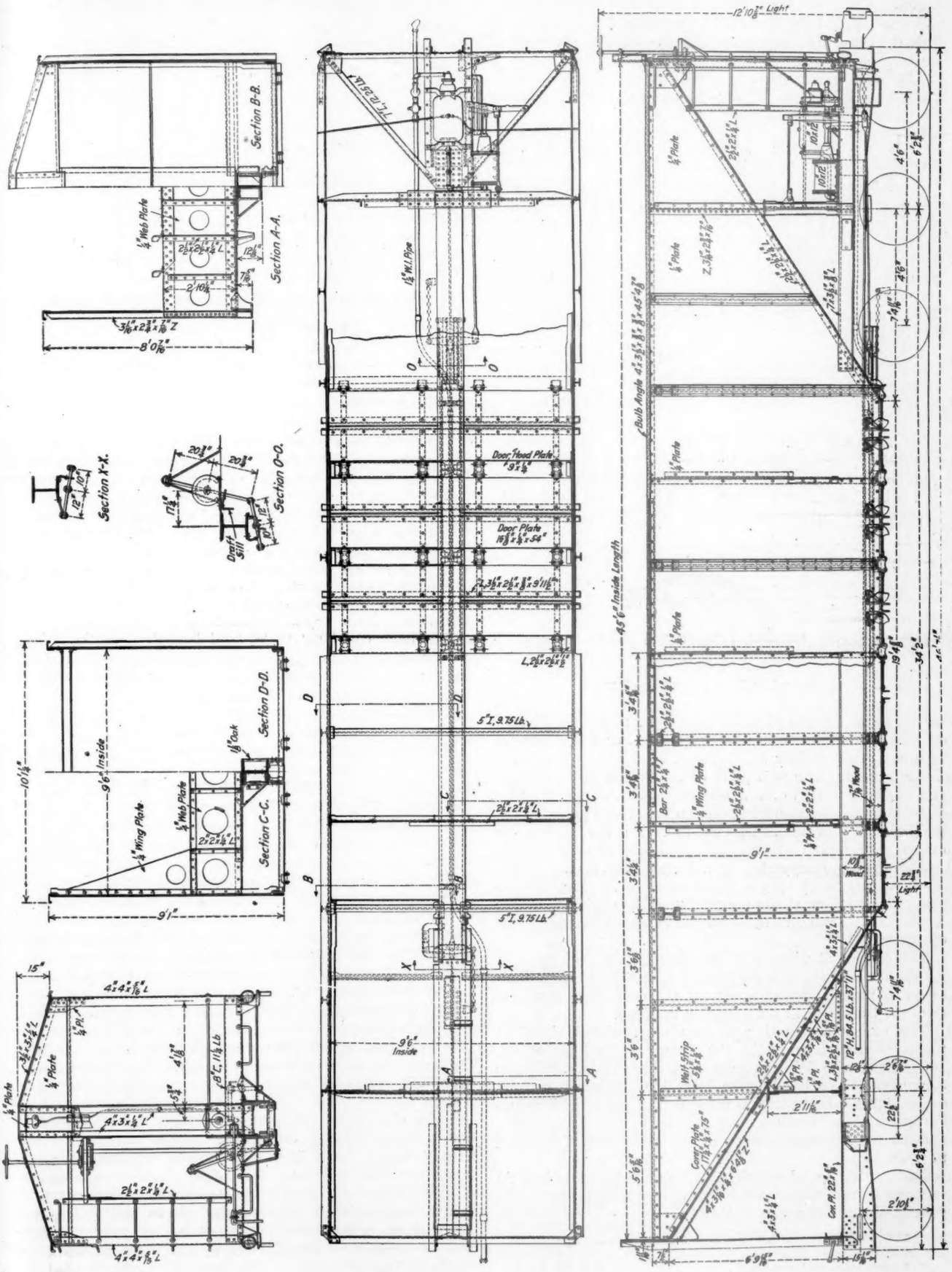


Drop Door Used on the Norfolk & Western Hopper Car

The top coping angle is a Carnegie bulb angle of 4-in. by 3½-in. by ⅜-in. section, which extends the full length of the car. For a bottom flange member a 5-in. by ⅝-in. flat bar is used; this member is in tension only. Where the load requires it, near the center of the car, this bar is reinforced with a 5-in. by 5/16-in. flat bar.

The slope of the hopper is 33 deg. and between each pair of doors is a small hood to make the car entirely self-cleaning. These hoods are likewise constructed at angles of 33 deg.

The ends of the car are formed into plate girders and are carried up to form end coal boards, thus encouraging filling out the ends of the car at the tipples and insuring a good heap. The outer ends of the draft sills are supported from



General Arrangement and Cross Sections of the Norfolk & Western Coal Car

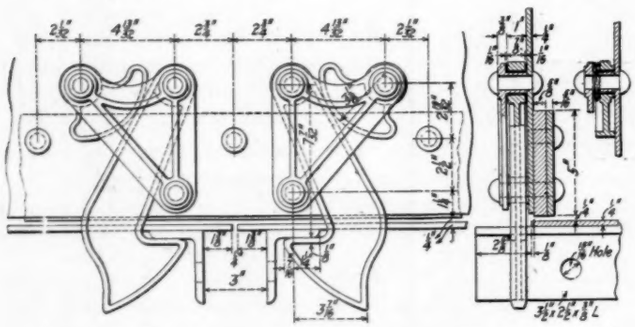
these end plate girders by two 4-in. by 3-in. by ¼-in. vertical angles. Care has been taken to properly attach the end plates to the corners of the car so that the downward forces from the coupler may be properly transmitted to the sides of the car.

The end sill is an 8-in., 11¼-lb. channel, which is framed at the corners to 7-in. by 3½-in. by ⅜-in. angles forming short side sills under the slope of the hopper.

Diagonal braces of 7-in., 12-lb. channels are used, extending from the corners of the car to the back end of the draft sill corner plates, to which they are riveted.

At each corner is a push-pole pocket which also includes a jacking pad beneath the corner construction. The design of the corner has been so worked out that, either in poling or jacking, the end metal of the structural sections come into bearing, and the load is transmitted to them without depending upon the rivets. Special provision has been made at the top of the 4-in. by 4-in. by 5/16-in. corner angles to take care of the loads at this point when the car is stooled under the corner jacking pad.

The bolsters consist of plate girders which are located above the center sill and beneath the hopper chute. These are constructed of ¼-in. web plates with top and bottom flange angles on both sides of the plate, and cover plates. The angles on



The Door Latch and Locking Device

the inside of the web plate and the cover plates are stopped off where the reduction in stress permits. For a side stake at each end of the bolster a 3 1/16-in. by 2¾-in. by 7/16-in. Z-bar is used. The web plate of the bolster is carried out and riveted directly to the web of this Z-bar, thus avoiding a duplication of rivets and framing angles at this point. Jacking pads are provided at the ends of each bolster so that the car may be jacked at one point and stooled at the other.

The doors are supported by a simple door hook arrangement manufactured by the Wine Railway Appliance Company. No winding shafts are used, the doors being raised by hand. This arrangement is shown in detail in one of the drawings.

The center sill where it passes through the coal space of the car is faced between the flanges with 1⅛-in. oak boards so as to present smooth sides for the coal when dumping from the bottom or in the dumping machine.

The car is equipped with Lewis articulated six-wheel trucks as manufactured by the American Steel Foundries. It is fitted with Westinghouse 10-in. by 12-in. air brake equipment. The hand brake is of the customary pattern, except that the brake staff is made in two pieces with reduction gears placed between them in order to give the necessary braking power without having an excessive amount of chain to wrap.

During the several months that this car has now been in service its performance has been entirely satisfactory. The general dimensions are as follows:

Inside length	45 ft. 6 in.
Coupled length	49 ft. 2 in.
Length over striking faces	46 ft. 7½ in.
Truck centers	34 ft. 2 in.
Inside width	9 ft. 6 in.
Extreme width	10 ft. 1¼ in.
Height to top of sides	11 ft.
Extreme height	12 ft. 10⅛ in.
Volume, level full	2,828 cu. ft.
Volume, 30 deg. heap	552 cu. ft.
Volume, total	3,380 cu. ft.
Capacity	100 tons
Light weight	60,000 lb.

Letters From Overseas

The Railway Age *expects to publish regularly letters from railwaymen overseas. If you receive a good letter from a railwayman who is now in France, send it in for publication and let the* Railway Age *pass it around for all to enjoy.*

From a Lieutenant in One of the Shop Regiments

I have just been reading the August number of the Railway Mechanical Engineer and have showed it to the French railroad officers. They were particularly interested, but their point of view is so different from ours that it is almost impossible to make any comparisons of work or methods in the shop. While they do waste a lot of energy in polishing up the ashpan and putting "inlaid patching" on the bumper beam, they finally end up by turning out a locomotive that is right and will stay right for a long time.

The French workmen start work at 6:00 a. m. or rather about 6:15 and do about three hours' work between 6 and 12. At 12 they start to go home, or rather they start to go home at 11:45, and do not return until 2:00 p. m. Work starts at 2:10 p. m. and continues until about 7 p. m. Altogether about five hours of work in a really good shop is all they do in the entire day, but they do it right. The ashpan is just as carefully fitted up as the valves.

At first I could not understand how they set the valves, but finally discovered that the valve motion was so carefully fitted up in the machine shop that it was not necessary to make adjustments after it was applied to the locomotive.

The adjustable type of wedge which we use in America made quite a hit with the French officers, but many of the large engines here do not have wedges—the box is pretty tight fit in the jaw and they claim there is only one millimetre wear in the jaw each year. It sounds a bit fishy to me, but I am no longer surprised at anything.

These locomotives are in splendid condition—they run as smooth as an eight-cylinder automobile—not a pound anywhere.

The title "engineer" over here covers a multitude of sins—an engineer wanders about and looks wise, if possible—so far as I can discover, he never by any chance does any work except to discuss technical subjects from the purely scientific standpoint without arriving at any conclusion. Perhaps I shall revise all my opinions next week, so I'll go no farther with them now.

I can now speak very much better French than when I first arrived and hope to be proficient in a couple of months. The French people are very much pleased because our boys all started in at once to learn French. The British make very little effort in that direction, and the French have noticed it.

From all indications the railroad shops are to all effects and purposes strongly unionized. I am amazed that the French army, which is a very efficient machine, has not taken over the railroads also. The French workmen go at exactly the same pace as in peace time and they spend just as much time in polishing the ashpan and putting inlaid patches on the bumper beam as they ever did. In this little shop there is enough copper and brass to supply a whole railroad.

Attitude of Security Owners

S. DAVIES WARFIELD, president of the National Association of Owners of Railroad Securities, recently sent a circular to members of the association regarding their attitude toward the action of the government in taking control of the railroads, in which he said in part:

The action of the government in taking over the operation of the railroads of the United States is the most far reaching recorded in our industrial history.

This association has followed the developments leading to this action and in reply to many inquiries now calls to the attention of its members the conditions under which their properties have been taken. The questions involved are of vital concern to every bondholder and every stockholder of all the railroads, and their adjustment should not be left to their operating executives. Indeed the results of any mistake here may not be confined to the holders of railroad securities—so large a part of the basis of all credit—but may be fraught with serious influence upon all enterprise for a generation to come.

The great question of permanent operation or ownership by the government, we will not discuss at this time. Its discussion involves questions of great moment, not alone to the fifty million people of the country who own, directly or indirectly, the securities of the railroads, but to all the people as a whole. It is an economic question which should be settled in time of peace; it has no place in these times of war and when there is to be discussed and determined the immediate necessities of the moment. Nor will we now discuss the details of the methods to be adopted by the government for the temporary use of the properties and for their return to their lawful owners after the war.

The exigencies of war and the conditions under which the railroads of the country were being operated made it imperative that their operation during the period of war should have the backing of the government.

We are, therefore, to assume that the bill is distinctly a measure of war, to give the necessary power to the President, and to protect the owners of the securities of the railroads during their operation by the government "at this time"—for the war period—and that such operation is for that period only.

May not the owners of the railroads, therefore, very properly make the request that the bill be framed to carry out the declared intention of taking the railroads for war purposes only and not for indefinite and continuous operation after the war, or for experimental purposes in connection with their operation or control. It should not be a requirement of the bill that the owners of the railroads, whose properties have been taken as a measure of war, must appeal to Congress to restore them at the expiration of the period for which they were taken. We may well ask that their restoration shall automatically take place at a fixed period at the close of the war.

It is not sufficient to say that we do not know under what conditions the railroads shall be returned to their owners—under what form of governmental control or regulation—or what may be the requirements for their future operation under plans of greater centralization of railroad capital and for greater co-operation in operating methods, which may take place. Such reasons do not alter the fact that the government's tenancy is for the purposes explicitly stated by the President, and, therefore, can only be temporary.

Our purpose in addressing you at this time is that you may be informed as to the effect of the most important sections of the bill now before Congress and which greatly concern the owners of the securities of the properties. Provisions of less importance and certain ambiguities in the bill we need not discuss herein. As largely representing such owners we should give co-operation to the government; we have assured them of such and we should gladly accept such rental for our properties as may be just. In fact, there are no security owners, we assume, who are not willing to make sacrifices as their patriotic duty and in their desire to help win the war. But, on the other hand, we should expect that the government will state when the rental shall cease and will operate and conduct our properties during their tenancy, forced upon them and upon us through the exigencies of war, with as little disturbance to the organizations of the several properties, which have cost millions in their development, as the demands of war conditions justify,—"nothing will be altered or disturbed which it is not necessary to disturb," the President has stated. We assume it is in this spirit that the railroads have been taken over and will be operated; in any other spirit, war conditions would be utilized as an expediency for depriving the owners of these properties of their lawful as well as moral rights. A great moral question is involved here and we are confident we can leave its settlement in the hands of our President who was specific in his reasons and purposes in taking over the temporary operation of the railroads.

This association has now the greatest responsibility of its existence, because during the period of governmental operation, and when the war closes, the position of the owners of the railroads should be clearly defined, and questions vital to such owners will arise.

Whether the great areas of unoccupied millions of acres of land of our country can be successfully and intensively developed by means better than through individual initiative and railroad operation, with the advantages incident to the full play of individual human endeavor; whether the full development of the industrial life of the nation can be accomplished better than through the competition involved in the building of railroads by private capital and the competitive system for securing and for the establishment of industries thereon, and through the proper and efficient operation of privately owned railroads under government control and regulation, wisely conducted; whether shippers in competition with other shippers, and whether the public, can secure better service than through the service they have been accustomed in times of peace to have offered them under the stimulus of individually operated enterprise; and whether employees can be given through other means the latitude for the enjoyment of personal liberty free from political restraint—all these are questions which are not at issue at this time, and should not be made an issue by an indefinite provision of an act of Congress permitting that to be done in a serious situation outside of and beyond what the President very pointedly stated was his purpose in the premises. As previously pointed out these are economic questions too vital to the country to bring up at a period other than during the time of the peaceful pursuits of the people and the conduct of our government in times of peace.

Nevertheless, if there is the intention to permit a situation to be created the result of which will make it impossible for you to get back your properties with the value attached to them at the time they are taken as going concerns, and which will fasten permanent government railroad operation on the nation, without adjusting the terms of payment for the principal of the properties, it is essential to the protection of your securities and only fair to you that such intention should be made known now.

THE QUANTITY OF COAL EXPORTED from the United States in 1917 was larger in both quantity and value than in any earlier year in the trade, the total quantity being about 32 million tons, including bunker coal, and the total value $113,000,000.—*Bulletin of the National City Bank of New York.*

Export Freight in Trainloads

TO EXPEDITE THE MOVEMENT of food and other supplies for the British, French and Italian governments —about 30,000 carloads of which are waiting to be shipped from western points—A. H. Smith, regional director of the eastern railroads, has issued a circular prescribing regulations under which this freight is to be concentrated at Chicago, East St. Louis, Buffalo and Pittsburgh so as to be sent forward, so far as practicable, in train loads; and it is hoped to get the freight through in considerably better time than heretofore. This order was issued on January 29, but the continued severe weather—low temperature, snow and wind combined—have since that day delayed freight throughout the Eastern states even more seriously than before; so that the benefits of the new plan have not yet been realized. The Lehigh Valley delivered a train load of flour (from Buffalo) at Constable Hook, New York harbor, on Monday, February 4; but the ship which was to receive it could not be brought to the dock. Floating ice baffled for a whole day the three tugs which were assigned to the task of placing the ship.

The regulations are under five heads and are in substance as follows:

1. Concentrate at Chicago all shipments originating at Chicago or tributary to the Chicago gateway; at East St. Louis, all tributary to that gateway; at Buffalo shipments from Canada, Michigan and other points tributary to Niagara Frontier; on roads leading into Pittsburgh, shipments from South of Ohio river or Central Freight territory tributary to Pittsburgh.

2. Make solid trains or groups at concentration points for each road to each port, holding cars accordingly, and advise this office daily by wire how many cars for each port and route are being held at each concentration point and how long the oldest car has been held. Initial road east of Chicago, East St. Louis, etc., will wire this office date and time each train or group of cars starts, stating number of loads, routing and delivery road at port.

3. These trains will be known as G. O. C. New York C No. 1, G. O. C. Boston S No. 1, etc. Chicago will use, as shown, the prefix "C"; East St. Louis prefix "S"; Buffalo "B"; and Pittsburgh "P."

4. G. O. C. prefix of permit numbers must be carried on waybills and running slips.

5. Routing can be changed to obtain full trains or full groups of cars, *provided always* that the delivery road and the port must be protected and cars must be delivered to the road that will insure this delivery. These trains and groups of cars will be routed to the ports by roads best able to move the traffic promptly, and for this purpose deliveries should be made as far as possible as follows:

For port delivery by	Consolidate at Chicago on	Consolidate at East St. Louis on
Boston & Albany	Mich. Central	C. C. C. & St. L.
Boston & Maine	Grand Trunk	C. C. C. & St. L.
Balt. & Ohio	Balt. & Ohio	Balt. & Ohio S. W.
Central of N. J.	N. Y. Central	C. C. C. & St. L.
Delaware, L. & W.	N. Y. C. & St. L.	Toledo, St. L. & W.
Erie	Erie	Toledo, St. L. & W.
Lehigh Valley	Mich. Central	Wabash.
N. Y. Central	N. Y. Central	C. C. C. & St. L.
N. Y. O. & W.	Grand Trunk	Wabash.
Pennsylvania	Pennsylvania	Vandalia.
Phila. & Reading	N. Y. Central	C. C. C. & St. L.
W. Maryland	Balt. & Ohio	Balt. & Ohio S. W.
Chesapeake & Ohio	C. & O. Ry. of Ind.	Balt. & Ohio S. W.
Norfolk & Western	Pennsylvania	Vandalia.

Owing to shortage and crippled condition of lighters and tugs, and adverse conditions in New York harbor, the ships of the Allies are to be sent for loads to the piers at the railroad terminals, and for this purpose each of the roads has, so far as practicable, assigned such piers as it can spare, without demoralizing its other traffic. This arrangement will do away with the necessity for a large amount of lightering and should save a great deal of time. The assignments of piers are as follows:

New York Central—Weehawken, four piers accommodating nine or ten steamers.

Erie—Weehawken, four piers, three of which are allocated to Belgian relief steamers; the fourth pier will accommodate one steamer.

Delaware, Lackawanna & Western—Hoboken, two piers with accommodations for three steamers.

Lehigh Valley—Constable Hook, one pier which will accommodate four steamers.

Central of New Jersey—One pier which will accommodate two steamers; but some dredging must be done.

Baltimore & Ohio—Will berth some steamers at American docks, St. George, Staten Island.

Pennsylvania—Has no piers available where there is sufficient depth of water for ocean-going vessels.

This arrangement is in addition to the regular arrangements for berthing of ships at railroad elevators for bulk grain.

Maturing Securities in 1918

L. F. LOREE, president of the Delaware & Hudson, has prepared the following statement showing the securities of railroads, public utilities, industrials and municipals maturing from January 1, 1918, to December 31, 1918:

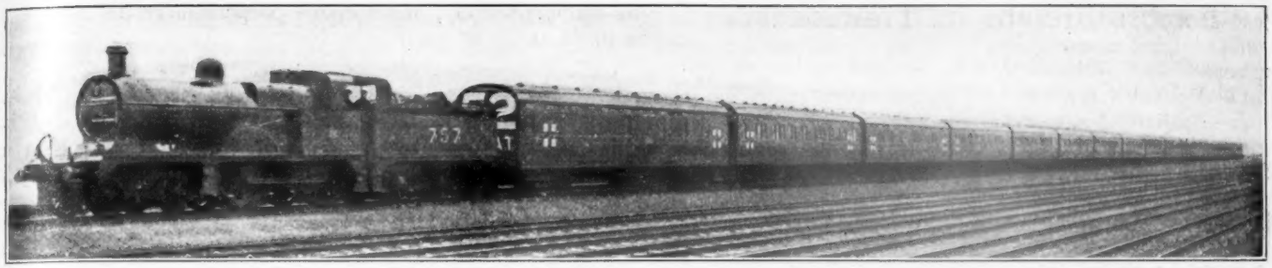
	United States only						
	Railroads	Public utilities	Industrials	State, county and municipals	Total	Companies in Canada Cuba and Mexico	Grand total
January	$17,452,877	$7,663,688	$15,792,723	$28,149,987	$69,059,275	$6,831,500	$75,890,775
February	9,421,167	59,301,065	25,229,775	3,201,191	97,153,198	643,000	97,796,198
March	4,602,240	9,247,750	22,554,325	6,480,620	42,884,935	719,500	43,604,435
April	57,205,820	11,875,400	17,436,692	6,535,934	93,053,846	434,000	93,487,846
May	30,102,248	21,879,150	21,114,092	13,189,688	86,285,178	696,000	86,981,178
June	9,102,781	11,406,250	10,037,942	11,752,481	42,299,454	90,000	42,389,454
July	24,750,813	79,061,000	8,285,442	19,822,057	131,919,312	7,561,530	139,480,842
August	6,990,709	7,143,400	10,072,942	7,371,291	31,578,342	12,503,000	44,081,342
September	20,498,711	4,450,950	6,162,167	5,658,731	36,770,559	10,590,500	47,361,059
October	6,088,344	7,386,000	8,385,442	3,645,961	25,505,747	10,629,000	36,134,747
November	24,211,948	2,409,750	7,124,656	3,290,729	37,037,083	4,020,000	41,057,083
December	3,763,781	2,304,280	30,441,562	11,575,301	48,084,924	3,497,500	51,582,424
Total	$214,191,439	$224,128,683	$182,637,760	$120,673,971	$741,631,853	$58,215,530	$799,847,383

Note:

Figures for railroads, public utilities and industrials were obtained from Moody's Manual of Securities.

Figures for municipals were obtained from the Financial and Commercial Chronicle, state and city section, these being the latest compilations available.

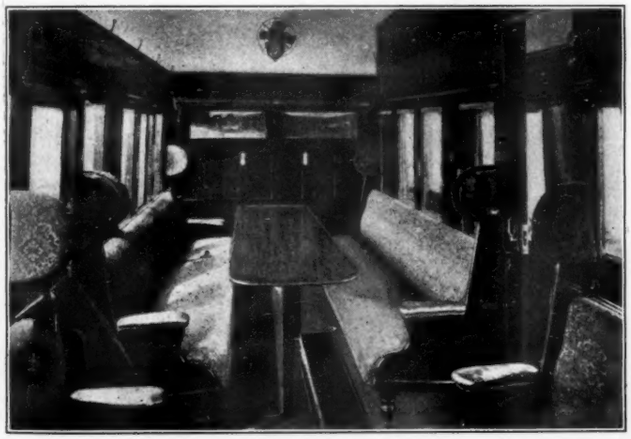
Of the railroad securities, $55,522,634 are equipment trust bonds, all or a substantial portion of which will presumably be taken care of through sinking funds created under the equipment trusts.



British Ambulance Train for American Wounded

The Midland Railway of England Has Built a Sixteen-Car Train for Our Forces in France

IF THERE WERE ANY DOUBTS as to whether wounded American soldiers would be properly taken care of on their journeys by rail to the hospitals behind the lines in France, they have all been dispelled by the announcement made by Surgeon General Bradley with the American Army in France on January 6 that 15 complete hospital trains have been ordered in England and two in France for this purpose.



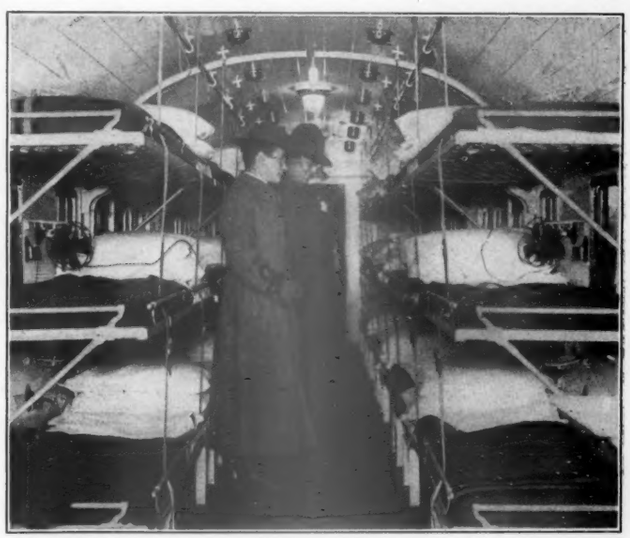
Sick Officers' Day Saloon

The announcement followed the placing of the orders some time, for on December 29 the American ambassador, a number of United States Army and Navy officers and prominent Americans and Englishmen were able to inspect at the St. Pancras station in London, the first of the completed trains —one built in the car shops of the Midland Railway of England. In the Patriotic War Number of the *Railway Age Gazette* there appeared a description of one of the ambulance trains built for the British Government by the Great Eastern Railway, and emphasis was placed on the extreme care that the British have taken to make the railway journeys for their wounded as pleasant and restful as possible under the circumstances. The American train, illustrations of which are given herewith, likewise shows evidence of this British skill and care.

The complete train consists of 16 cars with accommodation for about 430 persons, there being 393 cots for wounded and facilities for the staff and personnel. Each car is 54 ft. long, mounted on four-wheeled bogie trucks, and equipped with Westinghouse brakes. The couplings, draw hooks, steam connections and side chains are to the international standard. The total length of the train, without engine and tender, is 913 ft. and its weight (unloaded) 435 tons.

Each car is built of well-seasoned timber and painted khaki color, with two large red crosses on a white ground on either side. For identification purposes, the number of each car and the distinguishing letter are conspicuous on each side, and the train number with the distinguishing letters U. S. A. T. is painted on the extreme ends of the train.

The train is vestibuled, and fitted throughout with electric lights and fans. The roofs are semi-elliptical, with high and airy ceilings. Every care has been taken to admit of the interior of the cars being kept clean with the least effort. The floors are covered with linoleum or lead, and have rounded corners. The gangways between the cots are wide enough to pass the army stretcher. An abundant supply of



Central News Photo

American Officers Inspecting the Accommodations

water (2,835 gal.), apart from the drinking water, is carried in tanks built in the roof.

In addition to the equipment for heating the train by steam from the engine, the Staff car *B* and the Personnel car *C* have each a separate, self-contained circulating hot water apparatus for use when the engine is not attached.

The order of cars on the train is as follows:

A-10—Brake and "lying" infectious ward car.
B—Staff car.
D-1—Kitchen car (with officers' compartment).
A-1, *A-2*, *A-3*, *A-4*—Ward cars (four).
F—Pharmacy car.

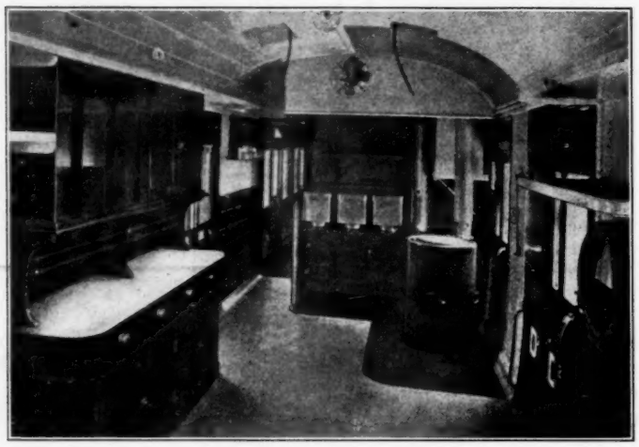
A-5, *A-6*, *A-7*, *A-8*, *A-9*—Ward cars (five).

D-2—Kitchen car (with N. C. O's and men's compartment).

C—Personnel car.

E—Brake and stores car.

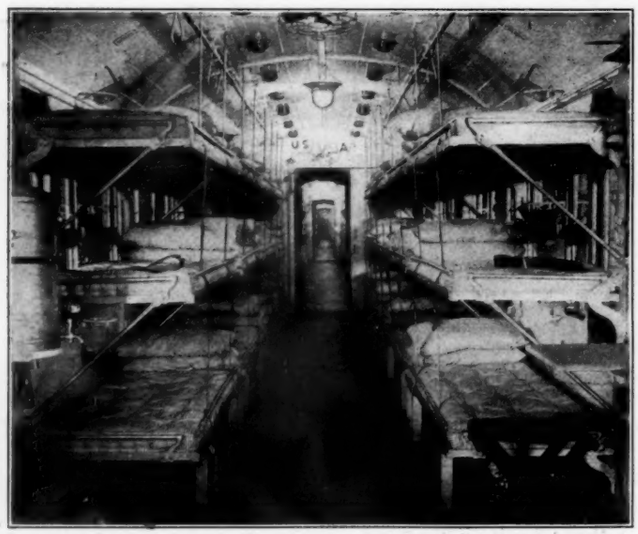
The brake and lying infectious ward car (*A-10*) contains four wards, each fitted with six beds, an attendant's compartment with lavatory and toilet accommodation, and a guard's compartment with bed, folding table and seat, lavatory, etc., in addition to the usual brake equipment.



The Kitchen Car

Staff car *B* contains dining room and sleeping compartments for the medical officers and nurses and lavatory and toilet accommodation, including side sprays. This car is also furnished with wardrobes, cabinets and book racks, and is finished and panelled throughout in polished mahogany.

Kitchen car *D-1* contains an officers' pantry and cook's room, with three sleeping berths, dining table, seats, etc. The kitchen, which is a spacious compartment is fitted with an army "Dixie" range with hot water supply, and a "Soyer" stove. A comfortably furnished sitting sick officers' compartment forms part of the kitchen car, having wood linings and tables of polished mahogany, and the seat coverings of moquette, with a lavatory compartment adjoining. A bath room is also provided in this car, containing a 4 ft., 6 in. bath, which is fitted with hot and cold water and shower bath.



Central News Photo

One of the Nine War Cars

The nine ward cars are open throughout, with a lavatory compartment at one end. Each car contains 36 folding cots, in three tiers, the cots in the middle tier being so arranged that they can be folded down to form backs for sitting cases on the lower tier. An ample supply of drinking water and conveniences such as paper racks, ash trays, etc., is provided for each patient. The sides and roofs of these cars are painted in glossy white enamel.

Pharmacy car *F* comprises a dispensary, and treatment medical officer's office, linen room, and a pantry for medical comforts, and an emergency compartment. The corridor on this car is wide enough to pass a stretcher into the treatment room. The dispensary is fitted with cupboards and racks for bottles, surgical dressings, etc. Part of this car is partitioned off and provided with eight berths, in which bad cases can be treated.

Kitchen and men's mess car *D-2* contains a large kit store, wash basin, and kitchen similar to that on car *D-1*, a mess room, with folding table for the men, and a smaller mess for the non-commissioned officers, the latter having two beds, so that the senior N. C. O's may sleep there if desired.

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War Car Arranged for Sitting Cases

Personnel car *C* is arranged similarly to the ward cars, except that the mattresses of the beds are covered with American cloth, so that the beds can be used as seats by the staff during the day. Kit racks are provided, and also small lockers under the beds.

Brake and store car *E* contains a large linen store and a compartment provided with shelves for carrying the general provisions required on the train, a kit store and compartment for perishables and a meat safe. A brake compartment similar to that on car *A-10* completes the car.

JAPANESE IMPORTS OF RAILWAY EQUIPMENT.—Among the principal imports into Japan during 1915 and 1916 were railway cars and parts valued at $308,312 in 1915 and at $149,039 in 1916; locomotives and tenders valued at $113,710 in 1915 and at $60,091 in 1916.

STEAM LOCOMOTIVES EXPORTED from the port of New York during December, 1917, were valued at $873,377. Steel rails exported in that month were valued at $680,127. The total exports for the month of December, says a recently issued bulletin of the National City Bank of New York, amounted to $86,304,580.

New Priority Regulations

THE PRIORITIES DIVISION of the War Industries Board on February 4 made public Priority Circular No. 3 defining the regulations which the Priorities Division now has in effect for determining precedence in orders and work and describing the methods of administering them. The regulations are subscribed to by the Secretary of War, Secretary of the Navy, the chairman of the Shipping Board and the president of the Emergency Fleet Corporation, and the chairman of the Council of National Defense. The circular discloses a much wider field of operations than that defined in the first circular issued in September of last year. The priority regulations apply to all individuals, firms, associations and corporations engaged in the production of copper, iron and steel and in the manufacture of their products; of chemicals, cotton duck and woolen cloth, and all such other raw materials and manufactured products as the committee may deem necessary from time to time.

Under the new regulations, all orders and work are divided into four general classes instead of three as heretofore: Class AA, Class A, Class B, and Class C, with such subdivisions as AA-1, Class AA-2, etc., Class A-1, Class B-1, etc. Class AA comprises only emergency war work of a special or urgent nature. Class A comprises all other war work; that is to say, orders and work necessary to carry on the war such as arms, ammunition, destroyers, submarines, airplanes, locomotives, etc., and the materials or commodities required in their production or manufacture. Class B comprises orders and work which, while not primarily designed for the prosecution of the war, yet are of public interest and essential to the national welfare or otherwise of special importance. Class C comprises all orders and work not embraced in the other three classifications and no certificate will be issued therefor. All orders, work or materials not covered by priority certificates will fall within Class C. The new regulations in no way change or modify any priority orders previously issued. The rule of procedure from now on is that orders and work in Class AA shall take precedence of those in all other classes; orders and work in Class A preceding those in Class B and those, in turn, orders and work in Class C, irrespective of the dates the orders were placed.

"The classification of an order," the circular states, "simply means that it shall be given such precedence over orders of a lower classification as may be necessary (and only such as may be necessary) to insure delivery on the date specified in the order. It does not mean that work should cease on orders of a lower classification or that the order should be completed and delivery made in advance of orders taking a lower classification if this is not necessary to effect delivery within the date specified. The one to whom a priority certificate is directed should make his own production plans so as to get the maximum of efficiency out of his operations, making all deliveries at the times contracted for, if possible, and where this is not possible, giving precedence to those orders which take the highest classification."

As a general rule, where an application for priority certificate is necessary, it should be made by the one placing the order on which the application is based, in the name of the department or official for whose account the order has been placed, whether of the United States government or one of the allied governments. In the latter case, the application must be made through and with the written approval of the war mission, which is representing that particular government in this country. Government contractors or subcontractors, however, may make application for priority direct to the committee if their need is urgent.

The committee does not administer priority on coal and coke, or foods and feed, which are handled by the Fuel and Food Administrations. The committee will, however, consider applications for priority assistance to procure tools, equipment, or supplies for the production of these commodities. The committee's work does not cover transportation and it does not attempt to expedite transportation.

No industry, plant, material, or commodity will be classified as such. Only specific orders for materials, commodities, or work are classified according to their importance in war preparation or in work necessary to the public interest and essential to the national welfare, or otherwise of exceptional importance.

"The paramount purpose of priorities," the circular says, "is the selective mobilization of the products of the soil, the mines, and the factories for direct and indirect war needs in such a way as will most effectually contribute toward winning the war. In requesting priority the petitioner should join with the committee in applying the test: To What Extent, if at All, Will the Granting of this Application Contribute, Directly or Indirectly, Toward Winning the War; and if at All, How Urgent Is the Need?"

Questionnaire on New Equipment, Additions and Betterments

DIRECTOR GENERAL OF RAILROADS McADOO has addressed a circular letter to the railroads under date of February 2, calling for complete information on accompanying blank forms as to new equipment, additions, betterments, extensions, etc., already contracted for or which are considered necessary for 1918. The roads are asked to send one copy of the answers with all possible despatch to the Regional Directors to whose jurisdiction they are subject and the other to the Interstate Commerce Commission.

In determining what additions and betterments, including equipment, and what road extensions should be treated as necessary, and what work already entered upon should be suspended, the roads are asked to be guided by the following general principles:

"From the financial standpoint it is highly important to avoid the necessity for raising any new capital which is not absolutely necessary for the protection and development of the required transportation facilities to meet the present and prospective needs of the country's business under war conditions. From the standpoint of the available supply of labor and material, it is likewise highly important that this supply shall not be absorbed except for the necessary purposes mentioned in the preceding sentence.

"Please also bear in mind that it may frequently happen that projects which might be regarded as highly meritorious and necessary when viewed from the separate standpoint of a particular company, may not be equally meritorious or necessary under existing conditions when the government has possession and control of railroads generally and therefore when facilities heretofore subject to the exclusive control of the separate companies are now available for common use whenever such common use will promote the movement of traffic.

"While the questions and blanks group together additions and betterments designed to improve capacity, efficiency and economy, this is done because of the difficulty of drawing sharp lines between these objects. It is important to emphasize, however, that under existing conditions the primary thing to accomplish is increased capacity to handle the traffic of the country.

"Please send as soon as possible the information called for in parts I and II of the questions and send the information called for in part III as soon as the accounts for December,

1917, shall be completed to the point where it is possible to send the information." The questions are as follows:

I.

Submit statement of equipment authorized or contracted for, or the contracting for which during the calendar year 1918 is believed by the management to be necessary for the proper conduct of the business.

Show the number of units, listing separately locomotives, cars, and other equipment in accordance with the descriptions relating to type and design carried on the blank form; where and by whom constructed; probable time of delivery; estimated probable cost of each unit; and estimated probable cost of aggregate.

Show in corresponding detail units of equipment which it is anticipated will be retired from service during the calendar year 1918, with the ledger value thereof, and approximately the way in which such ledger value will be disposed of in the accounts.

II.

Show additions and betterments (exclusive of equipment) and road extensions authorized or contracted for since December 27, 1917, or which in the judgment of the management it is necessary should be authorized or contracted for during the calendar year 1918, as follows:

(1) Total cost of additions and betterments (excluding road extensions) to existing roadway and structures which are primarily and principally calculated to increase the carrier's capacity, efficiency, or economy in respect of traffic which it expects will be offered and which could not be expeditiously and efficiently handled without such additions and betterments. In dealing with this class of expenditures, bear in mind that under existing conditions railroad facilities can and ought to be used in common so far as such common use will increase capacity, efficiency or economy. Hence, even if an expenditure would be calculated to promote these objects as to a particular railroad if viewed as a separate proposition, it would not be included under this heading where under existing conditions approximately the same objects could be accomplished by the greater common use of existing facilities of other railroads, or where the desired result could be better obtained by some joint expenditure for common use.

Give brief description of character and location of each project grouped under this heading where the cost charged to investment account aggregates $50,000 or more, and show in addition cost chargeable to operating expenses. As to each project of $50,000 or more thus separately listed, show probable time the addition or betterment will be completed and put into operation. As to each such project of $50,000 or more give explanation of benefit anticipated through enlargement of capacity or increase of efficiency or economy, giving as far as possible estimate in figures of annual amount of anticipated increase in net revenue from railway operations likely to result therefrom.

(2) Additions and betterments (excluding road extensions) to existing roadway and structures, which the management thinks should be made during the present calendar year, even though not primarily and principally for the objects stated in No. 1. Describe separately each such project involving an investment cost of $25,000 or more; show also amount chargeable to operating expenses, and give reasons why such projects should be entered upon at this time, bearing in mind the consideration stated in the next succeeding paragraph in opposition to entering at this time upon any expenditures which are not absolutely necessary. As to each such item of $25,000 or more, state benefit anticipated therefrom and give where possible estimate in figures of anticipated annual increase in net revenue from railway operations likely to result therefrom.

(3) Extensions of existing lines (i. e., additional road mileage), construction of new branches or new lines. Show mileage and estimated cost. Describe each extension. Say whether the construction is designed to serve a territory or locality which is already served by some other transportation system, naming such system, or is designed exclusively to develop territory not now served in a practicable way by some transportation line. Give fully the reasons why such construction should be entered upon at this time when it is of the highest importance to conserve capital, material and labor for the undertakings which are absolutely necessary and which cannot be postponed. Where practicable give an estimate in figures of annual net revenue from railway operations to be derived from such new construction.

Indicate the probable time required for completion and putting into operation.

III.

As to additions and betterments (exclusive of equipment) and road extensions which were inaugurated prior to December 28, 1917, and which have not been completed:

(1) Show amount authorized and amount already expended, showing separately (a) amounts chargeable to operating expenses, and (b) amounts chargeable to investment account. (See 5 below.)

(2) Show what part of this work in the judgment of the management, without detriment to the carrier's capacity, efficiency and economy, can and will be suspended in order to carry out the general policy herein outlined of postponing expenditures which could be avoided by joint use of facilities of other carriers and which ought to be postponed so as to conserve capital, material and labor.

(3) As to projects which the management believes should not be suspended, (a) as to each project whose investment cost is $50,000 or more, falling in the class described in paragraph 1 of II and (b) as to each project whose investment cost is $25,000 or more and falling in class described in paragraph 2 of II, give description and show separately investment cost and amount chargeable to operating expenses, and percentage of completion. As to projects falling in class described in paragrph 2 of II, i. e., those which are not primarily and principally to increase efficiency, economy or capacity, give the reasons why the management believes the work should be completed.

(4) As to all extensions of existing lines, and construction of new branches or new lines, show same information as is called for in paragraph 3 of II above and show also percentage completed. Show which of these projects can and ought to be suspended in order to avoid unnecessary expenditure of capital, material and labor at present.

(5) As to all items under III show the information as of December 31, 1917.

SCOTTISH RAILWAY STOCKHOLDERS' PROTECTION.—At a meeting of shareholders of Scottish railways held on December 19 in Glasgow, the following resolution was passed: "That an association to be called 'The Scottish Railway Stockholders' Protection Association' be and is hereby constituted, its objects being to take all necessary steps to safeguard and protect the interests of Scottish railway stockholders at the conclusion of the war, and that an executive committee consisting of 20 stockholders, with power to add to their numbers, be appointed, five to be a quorum, with full powers to carry into effect the formation of the association, to fix its constitution, and to take all such necessary steps and measures and incur such expense as may be deemed necessary by the executive committee to carry out the objects of the association and manage its business." Thereafter the meeting elected 20 representative stockholders to act as an executive committee, with powers to add to their number. A circular is shortly to be sent out to all stockholders of the Scottish railways inviting them to join the association.

The Relation of the Railroad to the Farmer*

Inauguration and Development of Farm Bureaus in New York State Has Had Far Reaching Results

By George A. Cullen
Passenger Traffic Manager, Delaware, Lackawanna & Western

In America alone, broadly speaking, was the policy adopted from the start of pushing the railroads out ahead of the population, not only into the far and middle West, but also into unsettled sections of the East. In all these cases the railroad projectors built upon hope and with a vision and a financial courage unequaled probably in all the history of mankind.

Coupled with the marvelous achievements in securing the capital, solving the engineering problems and marshalling and directing the forces of men and material, there was another phase of this pioneer work that some of us not yet in middle life can well remember as boys. I refer, of course, to the gigantic colonization agencies of the Union Pacific, the Burlington, the Santa Fe, the Rock Island, the Missouri Pacific, the Northern Pacific and other great systems of the West, which, not content with posting quarter sheet cards on every telegraph pole, fence and barn in staid New England, sent its emissaries by the thousands across the sea and there preached the gospel of prosperity and happiness in the land of freedom to the daring or the disappointed of Europe. We know how whole states such as Kansas, Nebraska, Minnesota, and the Dakotas were peopled thus.

We often forget, however, that the government did not do this and that the people of the United States as a whole did not do it, but that we owe this, which has probably been one of the most important factors in our present national greatness almost, if not quite wholly, to our railroads.

The activities of the different railroads in contributing to the agricultural development of the territory served by their lines vary not only with the different sections and localities and with the character of the products raised, but also in a marked degree, with the individual judgments, opinions or preferences of the different railroad managements concerned. This is but natural when you realize that the work is done by railroad men who do not claim to be farmers, but who are obliged to select from the many plans put forth by agricultural experts those best suited to their conditions and to the degree of effort, personal and financial, they feel they can profitably expend upon it.

About the year 1910, W. H. Truesdale, the president of the Delaware, Lackawanna & Western, himself a western man and before coming east the general manager of one of the largest of the western granger roads, became impressed with the way in which our national food production was being overtaken by domestic consumption, so that not only was the margin for export rapidly reaching the vanishing point, but the unprecedented condition apparently approaching when America would not produce enough foodstuffs for her growing population.

It was manifest that the printed bulletins of the agricultural department fell far short of accomplishing their theoretical purpose, by reason of the inability of the average man in any line of business to interest himself in the printed page without accompanying demonstration and personal contact.

The advice of the United States Department of Agriculture was sought, and Professor W. J. Spillman, chief of the division of farm management of the U. S. department, and the creator of the idea of the county agency, proved most enthusiastic in laying before us the principles which had already crystallized in his mind, and upon which the County Farm Bureau of today is founded. Professor Spillman's experience with county agents in the South, where they had originally been sent to exterminate the boll-weevil and had gradually developed into general agricultural advisers and had led to the introduction in that section of diversified farming, inspired him with the thought that the ideal unit of scientific, agricultural instruction was the county. He saw that the opportunities which an agricultural expert had in working in a restricted area, gave him an advantage over any other possible method, by reason of the fact that it enabled him to get into personal relationships with each farmer and to add to the mere cold, hard, scientific instruction, the persuasive power of personal contact, and by persistent application upon the individual farmer induce him to try the methods which science had proved were good and practicable.

Professor Spillman welcomed the opportunity to experiment in a section such as that of the southern tier of New York, where he believed the conditions ideal to demonstrate the practicability of his plan, and when he found the Lackawanna ready to contribute the funds necessary for at least one half of the support of the bureau the first year, and the Binghamton Chamber of Commerce one fourth, he found funds available in the U. S. department for the remainder, and in March, 1911, the Broome County Farm Bureau was organized.

The first year of the Broome County Farm Bureau was a very trying one, owing to a variety of causes, such as the unfamiliarity of the farmers in that particular region with scientific methods, skepticism as to the practicability of anything particularly new or progressive, and we must admit, a certain hesitancy to accept anything so freely offered by a railroad corporation and a chamber of commerce. The work did not become really successful until an association of farmers was with some little difficulty formed and financial support obtained therefrom. I never saw a better illustration of the fact that where your treasure is, there will your heart be also, than in this work, and I am now a firmer believer than ever in the fact that if you want to get a man's interest, you had better first get his capital.

This was soon followed by a contribution from the county itself through its board of supervisors, so that today these two agencies, the Farm Bureau Association and the board of supervisors, contribute over two-thirds of the total expense. Of course, with the development of the farm bureau throughout the nation, and under the provisions of the Smith-Lever act, the United States government and the state governments contribute to such farm bureaus, I think, $600 each per annum for their support, in addition to furnishing through the state colleges all of the assistance and direction necessary to make the county agent successful.

Following the Broome County Bureau, and, in 1912, the formation of the Farm Bureau of Cortland County was brought about by the Lackawanna on lines similar to those already described. Shortly following that came Chemung county and then others in rapid succession.

I have just received a letter from Hon. Raymond A. Pearson, assistant secretary of agriculture at Washington,

*Extracts from an address before the Massachusetts State Board of Agriculture, Worcester, Mass., January 9, 1918.

in which he says: "This work must have been well done, because it has stood the test of six or seven years, and it has been followed by the location of county agents in a very large number of counties. Of the 2850 rural counties in this country, 1900 now have county agents and about 1200 of these have women demonstration agents, an outgrowth, by the way, of the farm bureau plan. I always thought that the interest of your road in this matter came from a genuine appreciation of the fact that the railroad business and the farmer's business, to a large extent, depend upon each other. In the present emergency, the importance of these great industries in their intimate relations are being emphasized as never before."

The county farm bureau under competent management is, in our opinion, unquestionably the best medium not only for disseminating scientific information, but for bringing about among the farmers co-operative action along many lines where until recently they have been suffering seriously from too great a degree of individualism. This feature manifests itself in a variety of ways. On the one hand, we find farmers through the farm bureaus purchasing their supplies, agricultural implements, fertilizers and what not, at very much more favorable terms than would otherwise be possible and with a much better prospect of prompt delivery by reason of the quantity of the shipments. On the other hand, they are in many cases making possible the sale and shipment of farm products under much more favorable terms than heretofore, the farm bureau agent being located generally in one of the principal cities of the county and in contact with the general consuming public, either directly or through the agency of some railroad, and thus finding markets of superior attractiveness and securing improved treatment at the hands of the distributors in those markets. The possibilities along the latter line are very great, and we look to see counties acting as units of distribution with very promising results, both to the farmer and to the consumer.

In several other respects, the farm bureaus have, particularly during the past year, proved of a high degree of usefulness. An interesting illustration of this is had in the meeting called by the Lackawanna at Binghamton, N. Y., on April 7, 1917, at which the farm bureau managers of 13 counties were present, accompanied each by four of his Farm Bureau Association directors. These 65 representative authorities on farm needs and opportunities were gathered together with some 40 of the leading business men and bankers of Binghamton, Cortland, Norwich and Elmira and one or two other cities, and an entire day was spent in the discussion of ways and means to increase the production of the counties represented to meet the demand for foodstuffs growing out of the entrance of this country into war.

The effects of that meeting have been continuous throughout the subsequent period, and have resulted in a number of important, and, in some cases, original movements. Through the impetus flowing from this meeting and by the instrumentality of the railroad company, over 30 car loads of seed potatoes, which apparently could not otherwise have been obtained, were brought into the section involved. The use of tractors for plowing has been successfully experimented with, and will undoubtedly be largely increased in the coming season. Perhaps the most notable of all has been the response to the request of the farmers for labor. In this matter the farm bureau agents have acted as a medium for the temporary transfer of employees of manufacturers in Binghamton, Cortland, Norwich and Elmira to the farms of Broome, Cortland, Chenango and Chemung counties. This has been made possible by the unprecedented action of the large employers of labor in those cities, in releasing a considerable number of their men for periods of from one to four weeks in the planting and harvesting seasons for general farm labor, to which also the railroad company has contributed a number of its section men for such rough work as plowing. In all cases, the city employers have paid their employees the difference between the ruling price of farm labor and the wages which they were receiving in the city. Several hundred men have worked on the farms under this arrangement, and all reports are that it has been of real value to the farmers in the emergency existing, and has contributed materially to the increase of acreage under cultivation. All of this would have been entirely impossible, but for the agency of the farm bureau.

The possibilities of these farm bureaus, aided by the ever willing service of the railroad company, in the matter of improved methods for securing labor, the introduction of farm machinery, and particularly, in the yet undeveloped field of better marketing conditions, are, in our opinion, most attractive, and, in fact, hold the promise of greater usefulness than anything yet accomplished.

Carbocoal—A New Fuel

A NEW COMMERCIAL PROCESS for converting bituminous coal into a fuel which is smokeless and has the characteristics of anthracite coal, has been invented and perfected by C. H. Smith, who has been working on this new process for some time in conjunction with Blair & Company, of New York. The bituminous coal is taken in its raw state and subjected to a distillation process at relatively low temperatures which distills off vapors and permanent gases, leaving what is called Carbocoal to be made into briquettes. An important feature is that valuable by-products are obtained from the gases, the revenue from the sale of which largely compensates for the cost of the process.

The residue from the distillation is pressed into hard and durable briquettes. These briquettes are practically pure carbon, having only one to four per cent volatile matter. They provide an intense fire and are adaptable for use on locomotives where high steaming rates are required. The adaptability of this fuel for locomotive use has been determined by actual locomotive tests, at which high rates of combustion were obtained with practically no smoke. It has been found particularly suitable for use where limited grate area is obtained and restricted boiler capacity requires an efficien fuel. It is easily handled; the briquettes do not readily disintegrate.

The accompany table shows the products obtained from the raw bituminous coal by the distillation process. The

Raw Bituminous Coal—2,000 lb.
- Carbocoal Briquettes—1,440 lb.
- Gases and Vapors—560 lb.
  - Vapors—360 lb.
    - Tar Oils—Benzol, Toluol, Naphthas, Motor Spirit, Creosote, Oils, Tar Acids, Lubricating and Fuel Oils, Anthracene, Pitch and other tar oil products.
    - Ammonical Liquor—Ammonia (Concentrated), Sulphate of Ammonia, Cyanogen, Pyridene bases and other nitrogen compounds.
  - Permanent Gases—200 lb.
    - These are used to provide heat for the distillation process, or may be used for commercial purposes.

coal tar products are recovered in their primary stage, there being available some 20 gallons of tar oils for the market as compared with four or five gallons from the same grades of coal in the ordinary carbonization process. Many of the by-products which are obtained by this process are in great demand for use in the manufacture of explosives.

Such a fuel will find a field on railroads, for domestic use, in stationary and marine plants where smokeless operation is desired, and for kilns and gas producers. This process is being handled by the International Coal Products Corporation, of which Mr. Smith, the inventor of the process, is president. An experimental plant has been in operation at Irvington, N. J., and plans are now under way for the construction of new plants.

The Railroad Control Bill Is Reported

Committee Amendments Provide for Termination of Government Control After Fixed Period

WASHINGTON, D. C.

WITH AMENDMENTS providing for the termination of the government's control of the railroads at a fixed period after the close of the war, and restricting the President's authority to fix rates by a provision for a review by the Interstate Commerce Commission on appeal, the administration railroad control bill was reported by the Senate committee on Monday and is expected to be reported by the House committee later in the week. In the Senate bill the period of government control is limited to 18 months after the close of the war with discretion in the President to terminate it sooner. In the House bill a two-year period is provided. No change was made in the provision for the compensation of the roads based on their net operating income for the three years ending June 30, 1917, but the Senate committee inserted an amendment to prevent any increase in compensation based on earnings or surplus accruing and invested in the property during the period of federal control.

Because of the nature of the changes the bill was introduced in the Senate as a new bill S. 3713, and on Tuesday it was reintroduced as S. 3752 on account of an omission. It was referred back to the committee for a report later in the week. Chairman Smith said he would ask for its early consideration. Senators La Follette and Cummins will file minority reports.

The expressed wish of the administration that the period of government control should be left indefinite, in order that Congress might not be circumscribed as to time in reaching its determination as to the future status of the roads after the war, was disregarded by a considerable majority in both committees. Although most of the Democrats voted to leave the period indefinite and most of the Republicans voted for a time limit, the votes were not entirely controlled by party considerations and the well-known advocates of government ownership, such as Senators Cummins and La Follette and Representative Sims, were against any limitation.

The House Committee on Interstate and Foreign Commerce on Saturday adopted an amendment providing for a two-year period after the war by a vote of 15 to 6. All of the Republicans voted for it and also Representatives Rayburn, Montague, Coady, Dewalt, Snook and Sanders from among the Democrats. The amendment was proposed by Representative Montague, who had originally held out for a one-year limit. Amendments proposing a 3-year limitation offered by Representative Barkley, an 18-months limitation offered by Representative Parker, and a one-year limit offered by Representative Esch were defeated. The amendments voted by the House committee include one to provide that the proposed guarantee shall be "not in excess" of the three-year average. Another provides that a report shall be made on January 1 of each year of the expenditures from the $500,000,000 appropriation.

The House committee on Tuesday agreed by a vote of ten to eight to give the President unrestricted control over rates. The Senate provision regarding rates provides that whenever in his opinion public interest requires, the President may initiate rates by filing same with the Commission. The rates shall be fair, reasonable and just and shall take effect at such time and upon such notice as he may direct, but the Commission shall upon complaint enter upon hearing and consider all facts and circumstances. After full hearing it may make such findings and orders as are authorized by the commerce law.

The Senate committee held executive sessions on the bill throughout last week. The first result of its deliberations was a test vote of 7 to 6 for an amendment limiting the period of government control to one year after the close of the war. On the following day the committee also voted 7 to 6, but by a different alinement, against allowing the President unlimited authority to fix rates. Those who voted for Presidential rate making were Senators Smith, Myers, Robinson, Thompson, James and Poindexter, while those who favored retaining full power in the hands of the Interstate Commerce Commission were Pomerene, Gore, Underwood, Cummins, Townsend, McLean and Kellogg.

An effort to reconsider the votes was also defeated 7 to 6. The test votes were taken without the specific language of the amendments having been drafted. After a conference by members of the committee with President Wilson a compromise on a limitation of 18 months after the war and giving the President power to control rates subject to the right of the commission to review his action was adopted by a vote of 11 to 4, those opposing being Senators Gore, Cummins, Poindexter and La Follette. Senator Cummins proposed an amendment providing that during the period of readjustment after the war until Congress determines on the future status of the roads they should be controlled by a board of five consisting of an engineer, a financier, a representative of shippers, a railroad man and a lawyer.

He also offered an amendment providing for a reduction of the proposed guarantee. In specifying the period for the termination of government control after the war the Senate committee authorized the President to relinquish control over all roads before that time. It also inserted a provision for the benefit of the short lines giving the President discretion to determine, up to July 1, 1918, what roads are to be included in the plan, but providing that control of a railroad may not be relinquished after that time and before the relinquishment of control of all roads except by its consent.

Instead of passing on petitions of railroads for general increases in rates, as in the past, the Interstate Commerce Commission may have imposed upon it in the near future the interesting function of passing upon the application of the President of the United States for permission to advance rates to offset rising costs of operation and higher wages, if the bill becomes a law in the form it was reported by the Senate committee. This, of course, does not mean that Woodrow Wilson would appear personally before the commission in the way that the railroad executives have appeared with indifferent success on numerous occasions, to explain why the last partial increase had proved insufficient or to be told to cheer up and wait to see if the increased traffic of the next few months would not suffice to keep him out of the bankruptcy court. Nor does it mean that he would be subjected to cross-examination by Clifford Thorne and others as to the details of maintenance charges or the "thousand million" surplus which has re-echoed through Washington since the word billion became commonplace. What would happen in most cases in which the President desired an increased rate may probably be described by the formula used by the Interstate Commerce Commission in announcing the latest change in demurrage rates: "The Director General of Railroads having requested the commission's approval for filing of tariffs by the following-named carriers, viz.: ..... It is ordered, that the rules, regulations and charges above specified be, and they are hereby, approved for filing by said

carriers, without formal hearing, which approval shall not affect any subsequent proceeding relative thereto. It is further ordered that said tariffs may be filed, effective on ....., upon not less than one (1) day's notice. * * *" In the case of ordinary changes in rates in which the President and the Director General are not particularly interested doubtless the carriers would file fifteenth section applications in the usual manner, which would be approved or denied as in the past.

But, assuming that the wages of railway employees are increased by several hundred million dollars, and that other expenses continue to increase as they have during the past year or even remain stationary, it is conceivable that the President or Mr. McAdoo, or both, having in mind their responsibility for a "thousand million" dollar guarantee, to use rotund figures again, might propose that the expenses of the railroads be borne directly by those who use the railroads, rather than that a part of them should be defrayed by those who pay taxes. In other words, the President or Mr. McAdoo, or both, might find themselves in the position of a railroad president faced with increasing expenses on the one hand and fixed interest charges and a dividend rate that cannot be reduced without serious consequences on the other, and might attempt to remedy the situation in the same way that the railroad presidents have tried.

Quite likely other remedies would occur to other people, just as they have on similar occasions in the past, but it is at least within the domain of not too violent assumption that the President or Director General of the Unified Scrambled Railroad under such circumstances might follow the precedent so often set by the president of the X. Y. Z. Railroad and ask for a general increase in freight rates. Under the terms of the bill it is not strictly accurate to say that he would "ask" for the increase, or that he would even "demand" it. He would initiate it and the Interstate Commerce Commission would guide it to its ultimate destination. Mr. McAdoo, in his testimony before the House committee, indicated that such a possibility had occurred to him and that in an event of such importance he would naturally suppose that the commission would hold hearings in the usual way and make a recommendation. He made that assertion under his assumption that the Interstate Commerce Commission could not regulate the President of the United States. If Congress changes that assumption by declaring that it can delegate legislative power to a commission by giving it explicit instructions that all rates shall be "just and reasonable," but that such power cannot, or at least will not, be delegated to the Presdent, Mr. McAdoo's proposed method would be reversed and he or the President or both would recommend and the Interstate Commerce Commission would have the ultimate decision.

A general advance in freight rates might be no more popular with shippers if initiated by the President, or by the Director General, than if initiated by railroad officers, but it might be less popular and quite probably it would be less effective to say so. If increased wages should threaten to create a deficit after payment of the guarantee to the railroad companies an administration which already has found some difficulty in picking out new sources of taxation might naturally prefer to make the railroads pay as they go, rather than to make up a deficit by taxation afterward.

BRITISH RAILWAYMEN'S WAR RECORD.—One hundred thousand members of the National Union of Railwaymen of England are serving with the forces. Over 3,500 have been killed.

IMPORTS OF MACHINERY INTO HANKOW.—The value of railway machinery imported into Hankow, China, in 1914, amounted to $46,551; in 1915, $34,091, and in 1916, $34,166.

Rulings on Excess Profits Tax

REGULATIONS for the interpretation of the excess profits law, drafted by a board of experts in the treasury department with the aid of an advisory committee of business men, economists and accountants, have been approved by the Secretary of the Treasury and are now in the press. A statement giving a digest of the regulations has been issued by the Bureau of Internal Revenue.

The provisions which are of most general interest are those which deal with the definition of invested capital of corporations and partnerships and with the treatment under Section 210 of cases in which the capital cannot be satisfactorily determined and under Section 209 of cases of nominal capital.

The provisions of Section 210, which permit the deduction to be computed by reference to the deductions as determined in the ordinary way in the case of representative concerns engaged in the same trade or business, are held to apply to a number of classes of exceptional cases, among which are the following:

(1) Where on account of defective accounting it is impossible to accurately compute the invested capital.

(2) In the case of a foreign taxpayer, where the Secretary finds upon application that the expense of securing the necessary data is unreasonable in view of the amount of tax involved or that it is impracticable to determine either the entire invested capital or the entire net income.

(3) Long-established business concerns which by reason of conservative accounting or the form and manner of their organization would, through the operation of Section 207, be placed at a disadvantage in competition with representative concerns doing a similar business.

(4) Where the invested capital is seriously disproportionate to the taxable income, as for example because of the realization in one year of the earnings of capital unproductively invested through a period of years, or of the fruits of activities antedating the taxable year, or because of inability to recognize or properly allow for amortization, obsolescence, or exceptional depreciation due to the present war.

The provision which is probably of the greatest general interest is that which lays down the rule for the computation of the invested capital of corporations and partnerships. The law provides that the invested capital shall consist of the actual capital paid in and of the paid in or earned surplus and undivided profits, exclusive of the undivided profits of the taxable year. The law also prescribes certain limitations upon the valuation of assets and other items. The regulations provide that the total of the capital, surplus and undivided profits as shown on the books, adjusted as required by the limitations just referred to and as permitted by certain other provisions of the regulations, shall constitute the invested capital. In the few cases, however, where this total exceeds the adjusted value of the admissible assets (the law expressly excludes assets the income from which is tax free), the invested capital must be reduced so as not to exceed the total value of the admissible assets. If there has been any change in the invested capital during the taxable year, the monthly average shall be taken.

In addition to the express provisions of the law relating to invested capital, several of the provisions of the regulations supplementing those of the law are of the greatest importance. If, because of failure to provide for depletion, depreciation, obsolescence, or other expenses of losses, the books of the corporation or partnership do not show its true surplus or undivided profits, the necessary corrections must be made. But on the other hand, amounts which have been expended in the past for plant, equipment, or other tangible property still owned and in active use by the corpora-

tion or partnership, and which have been charged as current expense, may, unless such expense has been claimed as a deduction under the income tax acts of 1913 or 1916, be added to the surplus account, proper allowance being made for depletion or obsolescence. Amounts so expended for good will, trade-marks, trade-brands, franchises, and other like in tangible assets may be added only if bona fide payment was made therefor specifically as such in cash or tangible property. No readjustment can be allowed, however, for expenditures made for the general development of intangible assets, but such cases may, to some extent, be provided for under Section 210, to which reference has already been made.

Another important provision relating to the invested capital of a corporation or partnership is that, when it can be shown by satisfactory evidence that tangible property has been conveyed to it by gift or at a value clearly and substantially in excess of the cash or par value of the stock exchanged therefor, then the amount of the excess shall be included as paid-in surplus.

One other important provision relating to corporations is that every corporation must describe in its return all its relation with other affiliated corporations, and that in certain cases the Commissioner of Internal Revenue may require such affiliated corporations to make a consolidated return of net income and invested capital. Further provision is also made for the assessment of the tax on the basis of such consolidated returns in certain cases.

Unparalleled Delays by Storms

THE RAILROADS IN "EASTERN TERRITORY," which term now covers all the States east of Chicago and St. Louis and north of the Potomac and Ohio rivers, were just getting freight traffic to moving with some approach to normal conditions on Sunday last, when the fifth spell of zero and below-zero temperatures, accompanied by high winds, put a stop to the movement of heavy trains—and at many places stalled all trains—more serious than at any previous time. Severe weather has now hampered railroad operation in central and northern New York for sixty days, and the same is true in a less degree of northern Ohio, Indiana and Illinois.

By Sunday, February 3, the number of freight cars above normal—number waiting to be moved, both eastbound and westbound, loaded and empty—had increased in eastern territory by several thousand over the numbers one week previous, but on that day trains were moving on nearly all lines, and the New York Central sent east from Syracuse about 2,000 cars. The Pennsylvania, which suffered severely in the storms of January 26-28, had got its main lines and most of its branches in fair condition. But on Sunday night the temperature fell rapidly, and with high winds, filling cuts faster than plows could clear them, stopped freight traffic almost completely on the main line of the New York Central west of Albany, and the difficulties on the other trunk lines and in the anthracite region were scarcely less severe. On Tuesday morning Regional Director A. H. Smith reported serious difficulties on account of weather "all the way from Albany to Elkhart" (101 miles east of Chicago). From data gathered in his office on Tuesday it was estimated that throughout the entire eastern district the reduction of freight tonnage, because of severe weather conditions, was from 20 to 50 per cent.

In New York harbor navigation was impeded seriously, making delivery of coal increasingly difficult. Several tugs with loaded tows of coal were caught in ice in Long Island Sound. Shortage of labor at tidewater piers, due to extreme cold, seriously retarded the unloading of coal, and the coal was badly frozen.

All lines reported freight trains stalled in drifts, and a number of minor derailments due to ice in flanges and switches.

At Cincinnati on Tuesday conditions were improving, low temperature having caused the river to drop quite rapidly, but interchange tracks were still under water. About 50 per cent of the lines were still blocked by flood conditions.

Placing of empties in the Somerset coal region was discontinued on Monday at 3 p. m., due to severe blizzards, with drifting snow and derailments of through trains and empties.

The Lake Shore Limited due to arrive in New York Monday was held in a drift 24 hours. A train of stock had been stalled in the snow in northern New York since early Monday evening. Many men were having their faces, feet and hands frozen so that the releasing of stalled trains was carried on under great difficulty.

Trains were being delayed at all important terminals waiting for engines from round-houses, due to inability to get men to work. Four eastbound freight trains were staled in snow west of Syracuse Monday and not shoveled out until Tuesday, though 20 engines and a large gang of men were kept at work Monday and Monday night as long as they would work. It was so cold that the men refused to remain, claiming they could not live out of doors. Freight operations in that territory were practically suspended.

The Situation on Wednesday

So much for the situation on Tuesday. On Wednesday Mr. Smith's office summarized traffic and weather conditions as still extremely severe, but in the Central West the temperature was rising rapidly. Freight movement Tuesday was "practically at a standstill." Such roads as did move any freight reported movement from 5 to 25 per cent of normal. Freight trains were stalled in snow and engines were frozen. There was a shortage of water for engines; the water plugs froze as fast as they were thawed out. Derailments were caused by broken truck frames.

Throughout New England high wind made it impossible to keep tracks open and practically all freight trains that started out were stalled in snow. The snow was so hard and packed in so solid that a large number of serious derailments of plows, engines and cars further blocked operations.

On Wednesday morning there was 6 to 8 inches of new snow in northwestern New York. No freights were being operated in that section. Passenger trains were running from 2 to 4 hours late. South of Corning on the New York Central a northbound freight train was derailed by a broken truck, throwing cars on southbound track directly in front of a southbound freight, which struck the wreckage, derailing the engine and four cars. In northern Indiana Tuesday's blizzard blocked several roads, the cuts filling with snow. In western Pennsylvania it was necessary to limit passenger trains to six cars and then they were barely able to proceed with two engines. In the coal regions the cuts are blocked with from 16 to 20 feet of snow and the placing of empties is still greatly hampered; there is a good supply of cars if they can be placed. Two rotary plows have been sent from the Erie Railroad to assist in clearing branch lines in the Pennsylvania coal regions.

At Cincinnati the river fell, but ice from the flood was still seriously blocking railroad operation. The Ohio roads on Tuesday moved 560 cars of coal north from the coal fields. Placement of coke empties and movement were seriously affected.

Coal moved into Chicago Tuesday, amounted to 1,158 cars, about 70 per cent of normal. The Chicago, Terre Haute & South Eastern was again temporarily shut down by snow drifts. A new spreader was put in service to keep cuts open, but the conditions were so bad that very little was accomplished. Thirty-five cars of anthracite coal were moved through the Pennsylvania tubes to Long Island on Tuesday. Five steamers were bunkered in New York on Wednesday.

Unnecessary Telegraphing

By J. L. Coss

THE SEVERAL ARTICLES which have been published recently concerning this subject might well go farther into the detail of the numerous abuses in this line. A large portion are due to pure laziness on the part of certain employees. For instance all sorts of clerks, including some chief clerks, who are authorized to use the telegraph will write a telegram and send it to the telegraph office—the messenger boy will carry it there and bring the reply back to their desks—in preference to making a mailgram, because they thus save themselves the trouble of enclosing the telegram in an envelope.

Chief clerks who have the assigning of the agents and the operators will order a man to a certain place to relieve another employee and then make no arrangements whatever for transportation for either of them, knowing all the time that they cannot travel on the trains without a pass. Then these men commence to send telegrams for transportation; and after waiting awhile they will come in on the despatcher's circuit to be fixed up with wire transportation. And the despatcher may be busy and may lay out some train while he is preparing the wire passes.

Files of papers are sent out to agents and others and prompt return is required. But no attention is given to this requirement until the general office begins to trace for them and then the division clerks commence to burn up the wires for the return of those papers.

Another flagrant abuse of the wires arises from neglect to apply the necessary discipline against employees who do not follow the instructions contained in bulletins and circulars. For instance a local freight conductor neglects or refuses to move a short load or an empty from some station. The trainmaster may criticise the chief despatcher or the trick despatcher for not seeing that the car was moved (and I have seen just such action) and then the chief despatcher, if he is not able to put over his argument that it is a matter that is strictly up to the conductor falls into the habit of putting out messages to the local conductors (to do certain work) in a reckless way which is wholly uncalled for. His course only serves to make more telegraphing and simply calls the attention of the conductor to his known duty. After a while the men in charge of trains will become careless, and assume that if anything is wanted, beyond going from one terminal to the other, they will be advised by telegraph. It would be just as logical for the roadmaster, in the evening, to telegraph to all his foremen to be sure and come out on the track the next morning at seven o'clock.

I once worked on a division where there was a heavy interchange of traffic at many junction points and much irregular work all the time; but I do not think there were half a dozen messages about filling out trains, etc., during my stay there, which was about a year. The division officers had their men well instructed, and they went along and handled the trains to the satisfaction of all concerned. Such an arrangement can be carried out on any railroad; and the men would rather work that way than to be receiving a telegram at every station what to do at the next.

There is far too much telegraphing done concerning the furnishing of cars at stations for local loading. If the afternoon form of telegraphic car report were filled out in the proper manner by the agent who orders cars this report would answer every purpose; but this is not done and very little is said to the man who neglects it. Some roads require a separate message sent to the chief despatcher when stock cars are required; but why should not the car report suffice? The daily car report made up by the agents and mailed in to the division office is sufficient for answering many tracers, if the clerk receiving the report would look at it instead of putting it directly into a pigeon hole. The consist of a train should give all the information necessary for the next terminal to handle it; why send a separate message because there is stock and meat in the train? The icing instructions as well as the loading time of the stock, etc., can be put on the consist.

All of these troubles are due to the fact that the persons not doing their part are not held responsible.

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United States Marines on the Second Lap to Berlin

General News Department

The Illinois Central station and hotel at Centralia, Ill., were destroyed by fire on February 5.

The office building of the Maine Central at Portland, Me., was damaged by fire on February 2 to the amount of $50,000. The train despatchers had to establish a temporary office in the Boston & Maine building.

H. T. Bentley, superintendent of motive power and machinery, and **E. E. Betts,** superintendent of transportation, of the Chicago & North Western at Chicago, have been called to Washington, D. C., for an indefinite period to assist the director-general of railroads.

The "terminal" passenger station at Chattanooga, Tenn., according to a press despatch of January 22, is to be used by all of the roads entering that city; and the union station, used by the Nashville, Chattanooga & St. Louis and its affiliated lines, will be devoted wholly to offices.

Suspension of manufacturing, to conserve coal, has been ordered in Canada for three days, Saturday, Sunday and Monday, February 9, 10, 11. The order, which was recommended by the fuel controller of the Dominion, includes munitions plants, but does not apply to the Maritime provinces or to Western Canada.

W. T. Wolff, superintendent of freight station service of the Pennsylvania Western Lines, Pittsburgh, Pa., addressed the Iowa Commission on Car Service and a large gathering of railroad officers and shippers at the Chamber of Commerce, Des Moines, Iowa, on January 31. He spoke on the intensive loading of freight and the "sailing day" plan.

The Alton & Jacksonville, a 21-mile, standard gage line between Alton, Ill., and Jerseyville, has suspended business and the property will be sold as junk. The State Public Utilities Commission of Illinois, in an order issued last December, authorized the railway line to cease operations, but the company was delayed in doing so by suits brought by the bondholders.

The flood of January 28 in Southwestern Virginia, washed away 15 bridges on that section of the Southern Railway between Bristol and St. Charles, 92 miles. At the natural tunnel, 600 ft. of track was undermined. Between Big Stone Gap and Appalachia, 5 bridges were destroyed, and between Appalachia and St. Charles, 6 others. There were numerous washouts all along the line, and two trestles were destroyed.

Red Cross work rooms, completely equipped, have been opened at the Chicago passenger terminal of the Chicago & North Western. The active membership and organization of this new workshop will include the wives, mothers, sisters and daughters of North Western employees residing in Chicago and suburbs. Mrs. R. H. Aishton, wife of the president of the road, is general chairman of the workshop and work will be carried on under her direction. The rooms will be open from 9.30 a. m. to 4.30 p. m. every day of the week, except Sunday, and the work will include knitting, the preparation of surgical dressings, the making of hospital and refugee garments, etc.

The Grand Trunk Railway, of Canada, is celebrating its sixty-sixth anniversary, and the Montreal "Daily Star" has published a four-page historical sketch, giving many facts of interest both to the public and to railroad men. The Grand Trunk, like other roads in America and England, is now doing a greater business than ever before, and the "Star" finds ample evidence that the task "is being carried out in a more expeditious and efficient manner than on similar American railroads running to the seaboard." Speaking of some of the misfortunes of the railroad, the article says that it is an honorable, patriotic corporation which has been the victim of railway legislation, and "has been forced to accept the handicap of an ill considered transcontinental road engineered for party and not for patriotic ends." This historical sketch has been reprinted in pamphlet form.

Railway Regiments' Tobacco Fund

One contribution to the Railway Regiments' Tobacco Fund was received during the past week from the Empire Steel & Iron Company, of Catasauqua, Pa., for $20.

Government Regulation of Fuel Oil

President Wilson, on February 4, issued a proclamation putting under license the manufacture and distribution of fuel oils; and a series of regulations has been issued by the Fuel Administration establishing a preferential list of consumers which is headed by railroads and steamships. Difficulties in transportation are mentioned both in the proclamation and in the Fuel Administration's statement as having made the order necessary.

Equipment Necessary for Engineering Regiments

The scope of the work of equipping the regiments of railway engineers now in France is indicated by the cost of materials ordered up to date, which approximates $70,000,000. The equipment so far ordered includes several hundred locomotives, more than 100,000 tons of rails, more than 3,000 complete turnouts, 500,000 ties, 12,000 freight cars, 600 ballast cars and 600 miles of telephone wire and apparatus, as well as large quantities of construction and repair equipment.

Snow in the Alleghenies

Climbing from the hatch-holes in the roofs of their cabs, two engine crews released themselves from a snow trap on the loop track at Gallitzin, Wednesday morning, (January 30), following the cave-in of a wall of snow. They had to wait until a shovel gang could release them. The same condition prevailed on Monday morning at Gallitzin. Near New Florence a laborer was walking along in the snow when he stumbled over an object concealed in the white mass. He investigated and found he had tripped upon a brake wheel sticking up from a buried box car on a sidetrack.—*Altoona Tribune.*

New Engineering Regiments Authorized

Major Frederick Mears, member of the Alaskan Engineering Commission, has been authorized to recruit a railroad construction regiment for active duty in France. No one will be recruited from the present employes of the Alaskan Engineering Commission without the approval of the chairman. Recruiting offices for the regiment are to be opened at different points in the United States, which will be announced later.

Three additional forestry regiments are also to be organized. The co-operation of the Forestry Service of the Department of Agriculture has been extended in the selection of the personnel and equipment.

Safety Appliance Orders Further Extended

The Interstate Commerce Commission has granted the application of the railroads for a further extension of time from March 1, 1918, to September 1, 1919, in which to make their freight cars in service on July 1, 1911, conform to the standards prescribed by the commission in paragraphs b, c, e and f of the order of March 13, 1911.

Daring Railroad Robbery in Chicago

A daring robbery was committeed at the Randolph street suburban station of the Illinois Central, Chicago, at 10.20 p. m., February 1, when bandits shot and killed Dennis Tierney, collector for the road, and carried away with them a bag containing money estimated at about $2,000, collections Tierney had just made from suburban ticket offices of the Illinois Central.

The attack upon Mr. Tierney and M. J. Quinney, a special agent who accompanied him, was made by four men in the crowded station shortly after the day's receipts had been received from the ticket agent. The robbers made their escape down a stairway leading to a paved court which skirts the west side of the station, entered a taxicab and drove north to Lake street and then west. Although a number of suspects have since been arrested, no real evidence has yet been secured concerning the identity of the robbers.

Additional Railway Honor Men

According to information received from the Fort Smith & Western two employees of that road have received commissions and 44 others have either volunteered or joined the National army. L. P. LeBron, assistant engineer on the road, is now a captain, and W. J. Rider, assistant engineer, is second lieutenant. Returns from the Denver & Salt Lake state that 14 employees joined the colors in various branches up to December 21 and one employee has received a commission, namely, R. H. Mays, train despatcher, who is a second lieutenant in the infantry. Returns have so far been received from 128 railroads representing 209,968 operated miles.

The 128 roads have furnished a total of 55,363 soliders and sailors for the defense of the country, of whom 1,485 are commissioned officers.

Railway Revenues and Expenses, November, 1917

The net operating income of the railways of the United States for November, 1917, was less than November, 1916, by $128 per mile, or 28.8 per cent, according to the monthly bulletin of the Bureau of Railway Economics.

Total operating revenues, $354,960,249, exceeded those for November, 1916, by $32,250,289. Operating expenses, $260,150,825, were greater by $53,372,385. Net operating revenue, $94,809,424, decreased $21,122,096. Taxes, $22,087,690, increased by $8,242,762. Net operating income was $72,687,719, which is a decrease of $39,354,885.

If spread over the mileage represented, operating revenues averaged $1,535 per mile, an increase over November, 1916, of 9.9 per cent; operating expenses per mile, $1,125, were greater by 25.7 per cent; net operating revenue per mile, $410, shows a decrease of 18.3 per cent; while net operating income per mile, $314, decreased 28.8 per cent. Taxes per mile rose 59.4 per cent.

This summary covers 231,241 miles of operated line, or about 90 per cent of the total steam railway mileage of the United States.

For the eastern railways, operating revenues per mile were greater than those for November, 1916, by 11 per cent; operating expenses rose 27.4 per cent; net operating revenue decreased 26.1 per cent; taxes incrased 30.4 per cent; operating income per mile decreased 34.5 per cent.

For the railways of the southern district, operating revenues per mile exceeded those for November, 1916, by 15 per cent; operating expenses rose 27.4 per cent; net operating revenue decreased 5.3 per cent; taxes increased 65.9 per cent. Operating income per mile decreased 14.3 per cent.

For the western railways, operating revenues per mile exceeded those for November, 1916, by 7.3 per cent; operating expenses rose 23.5 per cent; net operating revenue decreased 16.4 per cent; taxes increased 32.9 per cent. Operating income per mile decreased 29.2 per cent.

The eleven months of the current calendar year, compared with the corresponding period of the preceding year, show changes per mile of line as follows: Operating revenues increased 11.6 per cent; operating expenses increased 19.8 per cent; net operating revenue decreased 3.9 per cent; taxes in-

REVENUES AND EXPENSES OF STEAM ROADS—NOVEMBER, 1917.

Compiled from monthly returns of the railways to the Interstate Commerce Commission and covering roads of Class 1, i. e., roads with annual operating revenues above $1,000,000.

Account	United States				Eastern District				Southern District				Western District			
	Amount, 1917	Per mile of line 1917	1916	Increase over 1916, Per cent	Amount, 1917	Per mile of line 1917	1916	Increase over 1916, Per cent	Amount, 1917	Per mile of line 1917	1916	Increase over 1916, Per cent	Amount, 1917	Per mile of line 1917	1916	Increase over 1916, Per cent
Total operating revenues	$354,960,249	$1,535	$1,397	9.9	$154,129,071	$2,613	$2,354	11.0	$54,939,040	$1,282	$1,114	15.0	$145,892,138	$1,127	$1,051	7.3
Freight	252,828,534	1,093	1,023	6.8	108,849,695	1,645	1,691	9.2	39,459,706	920	842	9.4	104,525,133	808	777	4.0
Passenger	69,984,709	302	247	22.3	28,951,701	491	420	16.9	11,700,049	273	102	42.2	29,232,950	225	186	31.4
Mail	4,502,279	20	22	d 11.6	1,841,966	31	32	d 2.9	703,023	17	18	d 7.7	1,957,390	15	19	d 19.5
Express	9,020,234	39	34	13.8	4,248,540	72	62	15.7	1,143,747	27	25	4.5	3,628,947	28	24	15.4
All other	18,724,493	81	72	15.3	10,237,169	174	149	16.7	1,939,616	45	37	19.9	6,547,809	51	45	12.4
Total operating expenses	260,150,625	1,125	695	25.7	132,730,698	2,081	1,634	27.4	37,795,710	862	692	27.4	79,624,417	770	623	23.5
Maintenance of way and structures	38,518,095	166	152	9.8	16,667,208	263	249	13.5	6,204,954	145	134	7.8	15,645,933	121	113	7.2
Maintenance of equipment	64,634,523	260	224	25.5	31,324,660	531	421	26.3	9,678,804	226	182	24.3	23,631,059	184	147	25.6
Traffic	5,272,979	23	22	2.5	2,023,405	34	34	2.4	976,957	23	22	2.4	2,272,617	16	17	2.8
Transportation	141,116,486	610	459	32.8	67,787,738	1,149	860	33.7	19,576,765	456	325	40.5	53,751,953	415	320	29.8
General	8,209,526	36	31	13.3	3,633,199	62	53	16.1	1,215,570	28	25	7.6	3,360,756	26	23	12.8
All other	2,199,217	10	7	35.7	1,294,488	23	17	26.1	142,660	4	3	30.6	762,069	6	3	61.3
Net operating revenue	94,809,424	410	502	d 18.3	31,398,373	532	720	d 26.1	17,143,330	400	422	d 5.3	46,267,721	357	428	d 16.4
Taxes	22,087,690	96	60	59.4	7,189,758	422	94	30.4	3,358,511	79	47	65.9	11,539,121	69	49	82.9
Uncollectible revenues	34,015	*	*	....	14,446	*	*	....	4,920	*	*	....	14,589	*	*	....
Operating income	72,687,719	314	442	d 28.8	24,194,169	410	626	d 34.5	13,779,539	321	375	d 14.3	34,714,011	268	379	d 29.2
Operating ratio—per cent—																
1917		73.29				79.63				68.80				68.29		
1916		64.08				69.40				62.10				59.29		
Average mileage represented—																
1917		231,242				58,384				42,871				129,387		
1916		231,013				59,237				42,698				129,078		

d Decrease. * Less than one dollar.

creased 34.9 per cent; mile operating income decreased 9.6 per cent.

Operating income per mile decreased 17.3 per cent in the east, decreased 7 per cent in the south and decreased 4.8 per cent in the west.

November net operating income per mile was 28.8 per cent. less in 1917 than 1916, 29.9 per cent less than in 1915 and 29.2 per cent greater than in 1914.

United Engineering Society Elects Officers

At the annual meeting of the trustees of the United Engineering Society, held in New York on January 25, the following officers were elected for the ensuing year: President, Charles F. Rand, member American Institute of Mining Engineers; first vice-president, Calvert Townley, member American Institute of Electrical Engineers; second vice-president, Robert M. Dixon, member American Society of Mechanical Engineers; treasurer, Dr. Joseph Struthers; secretary, Alfred D. Flinn, member American Society of Civil Engineers; chairman finance committee, J. Vipond Davies, member American Society of Civil Engineers.

Binghamton Engineering Society

The annual meeting and banquet of the Binghamton Engineering Society was held on Monday evening, January 21. The following officers were elected for the ensuing year: past president and chairman of executive committee, Robt. B. Hoadley; president, C. A. Dayton, assistant division engineer of the Delaware, Lackawanna & Western; first vice-president, C. E. Anderson; second vice-president, Charles Van Amburgh; third vice-president, Burt E. Nelson; secretary, D. M. Edgerton; treasurer, F. A. Tillman; librarian, Ray Fitzpatrick.

A "Mournful Jest"

[From the Wall Street Journal]

If a jest can be mournful surely that is one which the Senate Committee on Interstate Commerce has played upon the Interstate Commerce Commission. Early last year the commission covertly, and later in the year openly, abdicated its legal function of making the railroad rates of the country. In June it temporized. In December it threw up its hands in the attitude made familiar by the war correspondents and cried "Comrade!" in the direction of the White House. The war was too much for the commissioners. With a world in turmoil, they were unable to shake off the ancient habit of cherishing the shippers' "interest," which had reached its logical conclusion by depriving shippers of adequate transportation. So the commission quit.

No wonder, then, that President Wilson and Director-General McAdoo consider it necessary to take the supreme rate-making authority out of the hands of the commission and put it in those of the federal railroad administration. Very likely it was because they were afraid that if the commission retained its strangle-hold on rates given it by existing law it would remain a mere obstacle instead of an administrative body.

But it is quite as likely that the members of the Senate committee eliminated this transfer of rate authority from the railroad control bill for exactly the same reason. If such an amendment is adopted by Congress, that body will have sent the commission back to its appointed task as relentlessly as any judge ever dismissed a writ of habeas corpus and remanded the prisoner to his cell or the rock pile.

So far as outward appearances indicate, the commission has confined its activities since its despairing outcry of last December to ordering an assuredly temporary disruption of the Pacific coast rate adjustment, and to issuing two or three times a week an ill-digested and misleading report upon freight traffic movement and the condition of eastern terminals and yards. The character of these reports challenges the attention of Mr. McAdoo, if not of the President himself. They come, at least as a formality, from the pen of Commissioner McChord. By insinuation and intimation they convey the idea that the railroads have either wilfully or through sheer incompetence neglected the condition of their motive power, and that the lamentable condition of the carriers in the eastern section today is the direct result of gross mismanagement.

The fact is, as even Mr. McChord has once or twice inadvertently admitted in his issued statements, that the railroads simply cannot obtain the mechanics to keep their locomotives in good order, under the strain of an unprecedented traffic and the worst winter weather the East has experienced in a generation. Nearly a year ago railroad officers warned the commission of the alarming rate at which they were losing shopmen under the attractive wage offers of industrial plants. Revenues sufficient to permit liberal increases in wages or the purchase of additional power would have helped. But the commission knew better, as it always had before.

Now the Senate committee proposes that the commission shall fry in its own fat. Though these be war times, the spectators may be permitted a grim smile.

Detailed Instructions for Car-Saving

E. E. Betts, superintendent of transportation of the Chicago & North Western, has issued a circular to agents, conductors and others which "gets right down to business." Along with numerous well known admonitions Mr. Betts promulgates the following:

To Agents, Trainmen and Others:

"There is a shortage of cars everywhere. We are short in excess of 10,000 box cars, and the same proportion exists as to other classes of equipment. Forty-ton and fifty-ton cars may be loaded to their actual axle-carrying capacity; and do not forget that in the loading of company freight, we should set a good example. Require shippers to give the weight of the load they intend to ship and endeavor to provide a car to fit.

"Have cars spotted on arrival; notify consignee by telephone; urge him to unload at once; call him again if he fails you. Much can be done by a personal call. If no bill, wire the billing station. If you cannot get results, wire me. Urge consignees not to use 48 hours to unload a car; the saving of half a car day will be appreciated.

"Switch the car out the same day that it is made empty. Nothing discourages a merchant or chills his enthusiasm so much as to have a car lie around on his side track a day or two, after he has exerted himself to get it unloaded.

"Never permit an empty car to be delayed one hour for want of information as to what to do with it. Always have this information in advance of the time the car is unloaded. If you don't know what to do with it, find out from your train despatcher when it arrives under load; not after it is made empty. If car is to be reloaded at your station, have it spotted quickly. We will not hold cars for prospective business. Give brief but adequate reasons for detention of cars more than 48 hours. When company material arrives, notify consignee immediately by telephone or telegraph and confirm in writing. If car is not released within 24 hours, telegraph the superintendent.

To Train Conductors:

"Do all the switching. Report cars at blind sidings. If no disposition received, keep after it. Do not set out cars containing small consignments of freight at stations where cars are not required, but unload freight and take car to some station requiring cars. Watch for cross hauling of cars and tell the train despatcher. An empty car should always be the object of suspicion. . . ."

The Hyman-Michaels Company, of Chicago, has sent to its customers a circular calling attention to the increases in demurrage rates and showing, by a table, the additional cost *per ton of lading* for each day that a car is held; for example, a load of 30 tons held six days beyond the free time pays $1.10 per ton. Shippers are enjoined to load material which is strictly according to specifications and avoid rejections. "Do not ship cars to your own name or to shipper's order. Ship cars to consignees located at the final destinations and avoid reconsignments. Cars so shipped will not be held by railroads on account of unknown consignees. It is important to specify the railroad reaching destination.

"Mail the invoice the day car is loaded. If unable to do so furnish advance notice promptly, by telephone or messenger, of car number and initials, material, weight, consignee and destination. If the weight is not known before car leaves the loading point furnish all other information in advance and then advise weight promptly.

"Mills should ascertain daily the new cars on hand. If no advice of shipment has been received, the mills should advise shippers promptly the car number and initials, also the kind of material. Advise by telephone or messenger when possible. Mills should inspect and weigh cars immediately on arrival and notify shippers promptly of any discrepancies. Advice by telephone or telegraph is preferred."

Traffic News

The Buffalo, Rochester & Pittsburgh has discontinued two local trains on the Rochester Division, two on the Buffalo Division and (south of Butler) two on the Pittsburgh Division.

Provost Marshal General Crowder has announced that the movement of the last increments of men selected in the first draft for the National Army, about 75,000 men, will begin in February 23, and continue for five days.

The agricultural departments of the Chicago, Burlington & Quincy and the Colorado & Southern are conducting a special campaign to induce growers in dry land sections to put in a large acreage of pinto beans during the coming season.

A campaign to encourage the establishment of manufacturing industries in the Southwest, is proposed by C. E. Schaff, receiver of the Missouri, Kansas & Texas; this in response to the word from Washington that factories for the making of munitions and war materials ought to be established in the middle west and southwest. Mr. Schaff has issued a circular telling of the advantages to be found, close at hand, in the southwestern territory, and urging all citizens to co-operate.

Irving T. Bush, chief of embarkation for the War Department at New York City, under General Goethals, quartermaster general, is now assisted by a staff of civilians in the work of supervising the shipment of all supplies through the port of New York for the American forces in Europe. W. J. Edwards is in charge of the steamship division; H. G. Simonds is in charge of the warehouse division; Charles H. Ketcham, formerly superintendent on the Southern Pacific, and before that on the Delaware, Lackawanna & Western, is in charge of the railroad division, and W. F. Hersey is general superintendent of piers, with P. B. Blanchard as assistant. It is understood that T. V. O'Connor, president of the Internatonal Association of Longshoremen, will be put in charge of the employment and labor division. Other assistants in Mr. Bush's office are J. O. Hammit and Lieut. Philip L. Gerhardt.

Emergency Methods Used to Move Coal

Emergency measures for the protection of domestic consumers in Chicago against suffering from the lack of coal were recently taken by the Illinois State Fuel Administration and the railroads. R. H. Aishton, regional director of railroads, directed Illinois roads to sidetrack all freight, including meat and flour, in order to expedite coal shipments. The state fuel administrator ordered mine operators to ship the entire output of Illinois mines on February 5 to domestic consumers, public utilities and other preferred consumers. The Cook County fuel administrator issued an order dividing Chicago into 12 zones for the purpose of hastening deliveries of coal to domestic users. Coal operators and dealers were notified that the Garfield order legally releases them from all contractual obligations with industries not named in the preferred classes of the order.

Embargoes on the North Western

A. C. Johnson, general traffic manager of the Chicago & North Western, announces that henceforth embargoes will be issued daily, but only to agents at stations from which freight frequently moves to eastern territory. Agents not receiving embargo notices are not permitted to accept freight of any kind, either in carloads or less, destined to points east of the Indiana-Illinois state line, without special authority from the office of the general traffic manager. Agents receiving embargo notices are instructed to perfect a system for filing them, whereby they can be referred to conveniently and the necessary information given to the public without delay or confusion. Agents are warned particularly against permitting cars to be loaded, or signing bills of lading covering cars arbitrarily loaded by shippers, contrary to current embargoes. Any cars so loaded must be held under demurrage until embargoes are modified to permit their acceptance.

Plan to Relieve New York Port Congestion

At a conference of representatives of the Shipping Board, the railroad administration, the Army and Navy, shipping interests, and of the British government, held at Washington on January 30, a shipping control committee was formed to allocate ship tonnage which will take steps to relieve congestion at the port of New York by diversion of transatlantic traffic to other ports. Not only Philadelphia, Baltimore and Newport News, but especially the southern ports, are to be developed. Edward Chambers, traffic adviser to Director General of Railroads McAdoo, attended the conference and will arrange for the routing of export freight via southern gateways.

Dr. F. H. Dixon, professor of economics at Dartmouth College and chief statistician of the Bureau of Railway Economics, has been appointed a member of a research division appointed by the United States Shipping Board to investigate transportation problems in connection with the work of the Shipping Board.

To Map Out Army Truck Routes

The pathfinder car of the Highways Transport Committee of the Council of National Defense starts this week on a new task of mapping out army truck routes for the government. The committee has already laid out an official route from Detroit to the seaboard and another from Buffalo to the seaboard. It is now proposed to tap every truck manufacturing point in the central West and pick out feeder lines to two great main highways running eastward.

The pathfinder will go as far West as the Mississippi river and will map routes from cities in Wisconsin, Illinois, Michigan, Indiana, and Ohio. The car will be in charge of Raymond Beck, Field Engineer of the Highways Transport Committee. As each state line is reached a representative of the state highway department will join the car and proceed over the roads of his own state.

When this trip is completed the government will have four main highways forming connecting links between the great manufacturing centers of the country and the Atlantic seaboard. Motor transports on their way to France will follow these routes and will carry cargoes to relieve railroad freight congestion. The drivers will secure their training under service conditions and be better fitted for their tasks of driving when they reach the war zone.

Revised Demurrage Rules in Effect February 10

As briefly noted in last week's issue, page 257, the Director General of Railroads has modified the new demurrage rules which were put into effect on January 21, and which were objected to in some particulars by a committee representing the National Industrial Traffic League. The changes are described in General Order No. 7, which becomes effective on February 10, and which contains the new rules in detail in an appendix. The "bunching rule," as it appears in revised form, reads as follows:

"Cars for Unloading or Reconsigning.—When, as the result of the act or neglect of any carrier, cars originating at the same point or at intermediate points moving via the same route and destined for one consignee, at one point, are bunched at originating point, in transit, or at destination, and delivered by the carrier in accumulated numbers in excess of daily shipments, the consignee shall be allowed such free time as he would have been entitled to had the cars been delivered in accordance with the daily rate of shipment. Claim to be presented to carriers' agent within fifteen (15) days."

The demurrage rules do not apply to:

1. Cars loaded with live stock;
2. Empty cars placed for loading coal at mines or mine sidings or coke at coke ovens and cars under load at mines or mine sidings or coke at coke ovens;
3. Foreign export freight awaiting ships at ports;
4. Coal for trans-shipment at tidewater or lake ports;
5. Empty private cars stored on railroad or private tracks, provided such cars have not been placed or tendered for loading on the orders of a shipper.

The Interstate Commerce Commission has approved for filing, at the request of the Director General, tariffs of the eastern railroads containing new demurrage rules and regu-

lations governing cars of anthracite and bituminous coal or coke for trans-shipment by vessel. These rules apply also on cars held for or by consignors or consignees for unloading, forwarding directions, or for any other purpose, except cars reconsigned or reshipped for rail delivery or to another rail destination, when they will be subject to the national car demurrage rules.

An average of three days per car free time will be allowed. A notice of arrival must be sent or given to the consignee in writing or as otherwise agreed to by carrier and consignee upon arrival of cars and billing, and time will be computed from the first 7 a. m. thereafter. Holidays, but not half-holidays, will be excluded. A car is to be considered as released at the time the vessel registers for the coal or coke, or earlier when cars are unloaded before the vessel registers. The day on which shipments are transferred by written order and acceptance to another party is to be considered the date of release of the car for the account of the original consignee, and the detention shall follow the car and be charged in the account of the new consignee.

Average agreement.—Settlement shall be made on basis of the detention to all cars released during each month. The date of arrival notice shall be subtracted from the date of release. From the total days' detention to all cars thus obtained deduct three days free time allowance for each car; the remainder, if any, will be the number of days to be charged at the rate of $3 per car per day. Excess credit days of any month can not be deducted from excess debit days of another month. At lake ports, however, cars released during April and May are to be considered as May detention and treated as one month. Loaded cars on hand at the close of navigation will be recorded released on that date in computing the average detention; and subsequent detention will be subject to the National car demurrage rules.

Co-operation Between the Railroad and Food Administrators

Plans have been worked out for co-operation between the Railroad Administration and the Food Administrator in the matter of car supply for shipments of foodstuffs. Edward Chambers, who is Mr. McAdoo's traffic adviser, was formerly transportation manager of the Food Administration, where he gathered much information concerning conditions in various localities which will be valuable in directing the movement of cars.

Under the plan now prescribed, shippers will apply for cars as usual and if their requisitions are not filled, they are to apply to the Food Administration at Washington, or its local agents. Dealers in grain and grain products, not promptly served by the railroad agent, may, after a reasonable time, apply to the representative, for that zone, of the Food Administration, Grain Division, giving name of consignee, name of commodity and all details. Shippers of sugar, beans, rice, perishable fruits and livestock, if not properly served, may apply directly to the Food Administration in Washington, giving all details. Diversion in transit will not be permitted except for perishable freight. It is hoped that the new arrangement will enable the Food Administration to give to the director-general of railroads definite information so that cars can be distributed to supply the most acute needs.

Relief for the Cotton Situation

In accordance with plans which have been worked out for greater co-operation between the railroad administration and the Shipping Board, Edward Chambers, traffic adviser to Mr. McAdoo, on February 1 sent a telegram to C. H. Markham, regional director for the southeastern railroads, authorizing him to accept and forward at current rates via Brunswick, Savannah or Charleston 50,000 to 100,000 bales of cotton for domestic consumption in New York or vicinity or in New England, stating that the Shipping Board will provide ships which will be operated in the regular lines. Mr. Chambers said that there might be some delay at ports awaiting ships, but nothing serious. and that it might be well to arrange to unload cars at ports on arrival, assuming that sufficient storage capacity was available to accept the cotton should it all accumulate before the ships arrived. The cotton should be routed, he said, via either of these southern ports in an amount sufficient to make full cargoes for New York or New England ports and any desirable rail route to the southern ports might be used, regardless of tariff obligation, at the rate in effect over any route from the same point of origin. Special authority would be issued if it were necessary to use an unauthorized route.

This action was taken in answer to many requests from the south and southwest for relief of the situation caused by cotton being held up in transit. Most of the mills in New England and New York are working principally on government orders. Arrangements were also made to send additional ships to Galveston to carry the accumulation from Texas and Oklahoma when destined for domestic consumption in New England. Representatives of the National Association of Cotton Manufacturers and of the New England association were in conference with Mr. Chambers the day the order was issued and they were much gratified, as many of the mills were running on part time and some were facing a complete shutdown, due to the inability to get the cotton from the south. With the full co-operation of the Shipping Board it is expected that the plan outlined will relieve the situation.

Pipe Line Traffic in December

The United States Geological Survey has issued a statement showing the movement of crude petroleum in December, 1917, as reported by 180 pipe line and refining companies that handle or receive oil direct from the productive fields east of the Rocky Mountains. This compilation includes statements filed by 44 companies operating in the Appalachian field, 83 in the Oklahoma-Kansas field and 53 in smaller fields.

Crude Petroleum Moved from Field Sources (bbls.)

Field	December, 1917	November, 1917	December, 1916
Appalachian	1,810,578	2,014,190	1,617,734
Lima-Indiana	229,316	281,229	274,628
Illinois	1,094,127	1,235,761	1,413,075
Oklahoma-Kansas	12,543,980	13,289,455	9,940,783
Central and North Texas	993,805	986,244	849,827
North Louisiana	509,510	294,389	782,983
Gulf Coast	1,773,225	1,613,538	1,815,066
Rocky Mountain	852,602	777,906	674,846

The stocks of crude petroleum on hand at the end of December were, in barrels:

Source of oil		Source of oil	
Appalachian	4,042,829	Central and North Texas	2,737,472
Lima-Indiana	1,906,848	North Louisiana	2,623,446
Illinois	3,585,312	Gulf Coast	9,047,337
Oklahoma-Kansas	94,780,528	Rocky Mountain	509,039

Statistics of petroleum movement in California are not included because of delays incident to procuring first-hand data. In the Rocky Mountain field unusually moderate weather prevailed during the greater part of December. Demand of consumers for crude petroleum in December, though in excess of current production in all fields except the Appalachian and Rocky Mountain fields, was generally less than in November with respect to light gravity oils, but was greater with respect to petroleum valuable for use as fuel. Except in the Oklahoma-Kansas field, the surface reserve of crude oil at the end of 1917 was appreciably less than at the end of 1916.

Wood Used as Fuel in Portugal.—The most serious problem of the year 1916 in Portugal was the scarcity of fuel. Thousands of tons of wood were used by the railways, factories and lighting establishments. All the fast-train services were canceled, with the exception of the express to Madrid three times a week and one between Oporto and Lisbon.

The Budget of the Swiss Federal Railways for the coming year provides, among others, for the following expenditures: For the electrification of tracks, $3,757,907; for a locomotive roundhouse near the main station of Zurich, $96,500; for extension of the station of Schlieren, $86,850; for the reconstruction of the railway on the left bank of Zurich Lake, $541,400; for a double track from Thalwil to Richterswil, $96,500; for the extension of the station of Waedenswil, $19,300; for the extension of the station at Alstetten, $35,226. In case there should be an improvement in general conditions an additional $19,300 is to be expended for the extension of the station at Waedenswil; $38,600 for the transfer of the station at Horgen; and $19,300 for the extension of the station at Winterthur.—*Commerce Report.*

Commission and Court News

Interstate Commerce Commission

The Interstate Commerce Commission has announced further hearings on the tentative valuation of the Kansas City Southern, one at Kansas City on March 5 on all subjects except the "other values and elements of value," and one at Washington on March 14 on that subject.

Private Car Inquiry

The Interstate Commerce Commission, which recently issued an order reopening the inquiry concerning private cars, begun in 1913 but never completed, has issued a questionnaire for the purpose of bringing down to date the data called for on February 27, 1913. The commission intends to hold further hearings at convenient points throughout the United States to give all interested further opportunity to be heard. Forms calling for statistical data are returnable by March 1. The questions asked call for information regarding the organization of the individual company, firm or corporation owning cars, capitalization and stockholders, number and kind of cars, and statistics showing cost of construction, operation, maintenance, etc., mileage made, character of traffic handled, earnings, rental or other charges collected from or through railroads for use of cars, payments to railroads for hauling, etc.

Personnel of Commissions

Seymour VanSantvoord, chairman of the New York State Public Service Commission, second district, whose term of office expired on February 1, sent to the governor his resignation on the day before, suggesting, in a sarcastic letter, that the governor ought to have made known his intention either of reappointing or of naming a successor. Commissioner James O. Carr, whose term has two years to run, has also sent in his resignation. William T. Emmet, another member of the same commission, died at his home in New York city on February 4 at the age of 49. Of the five members of this commission, two only remain in office, Messrs. Irvine, and Barhite; and the commission therefore can issue no orders. For two vacancies on the commission for the First District, the Governor nominated two men several weeks ago; but the nominations have been held up in the Senate Committee. It is expected, however, that these two men, C. B. Hubbell of New York, and F. J. Kracke of Brooklyn, will be confirmed this week.

Court News

Admission of Liability—Compromise

The Colorado Supreme Court, in an action for damages for killing a cow, holds that evidence that the defendant's claim agent offered to pay in settlement a sum less than one-half of the amount claimed is inadmissible as an admission of liability, for the offer must be deemed to have been one of compromise.—C., B. & Q. v. Peppard (Colo.), 169 Pac., 282. December 2, 1917.

Claims for Damages to Live Stock

The Michigan Supreme Court holds that though a uniform live stock contract filed with the Interstate Commerce Commission declared that no claim for damages should be allowed unless made in writing, verified by affidavit and delivered to the traffic manager of the carrier within five days from the time the stock is removed from the car, a written communication by the railroad company's local agent at the place of destination made within the time limit prescribed, which stated that the animals had been injured and that claim would be made, is a sufficient compliance with the requirements for notice.—Snyder v. King (Mich.), 165 N. W., 840. Decided December 27, 1917.

Crossing Accidents

Where a motorist slackened speed on approaching a track and looked for approaching trains, the Michigan Supreme Court holds that he cannot be held guilty of contributory negligence as a matter of law, though he did not stop and was struck by a train slowly backing along the track, the night being so dark that he could not see the approaching train, on which there were no lights as there should have been, and hence the question of the motorist's contributory negligence was for the jury.—Mills v. Waters (Mich.), 165 N. W., 740. Decided December 27, 1917.

Workmen's Compensation

A brakeman was killed at about the time when two cars of an interstate milk train were being coupled. He had charge of the coupling. In proceedings under the New York Workmen's Compensation Act it was contended by the railroad that the death was caused by non-compliance with the Federal Safety Appliance Act and therefore the Workmen's Compensation Act did not apply. The Appellate Division holds that under the evidence the State Industrial Commission was justified in finding that there was no violation of the Federal Act and no negligence of the employer; and the fact that the commission was unable to say what was the cause of the death was immaterial, so long as the cars and appliances were within the law. The commission's award under the New York laws was therefore affirmed.—Zimmerman v. New York Central, 167 N. Y. Supp., 501. Decided November 14, 1917.

Tariff Provisions

In a tariff rate case it appeared that the defendant railroad, the Chicago, Milwaukee & St. Paul, has a line from Linton, N. D., through Strasburg, N. D., to Minneapolis, Minn. Its freight tariff names 17 cents per 100 lb. for wheat from Strasburg to Minneapolis, and 16 cents from Linton, the next more distant station, to Minneapolis. The tariff also provided: "Between stations on the C., M. & St. P. rates to and from intermediate stations will be the same as shown to or from the next more distant station to or from which rates are named." The Minnesota Supreme Court holds that this provision applies only to shipping points to or from which a specific rate is not named and which are intermediate between stations to or from which a specific rate is named, and does not apply to Strasburg; and that the legal rate for shipments from Strasburg is the specific rate named therefor.—Reliance Elevator Co. v. C., M. & St. P. (Minn.), 165 N. W., 867. Decided December 21, 1917.

Irregularity in Foreclosure Sale

In a suit to foreclose a mortgage on railroad property, the court, having decreed a sale, confirmed the order of sale without an order nisi. On application by a creditor, bondholder and stockholder of the company to set aside the sale and the order confirming it, it appeared that the applicant admitted liability to inform the court of any person or corporation which, in his judgment, would reasonably be expected to become holders for the property, should the sale be set aside, and it did not appear that better terms could reasonably be expected in case of resale. The Circuit Court of Appeals, Sixth Circuit, holds that though the sale was confirmed without an order the irregularity did not prejudice the applicant, and was no ground for setting aside the order confirming the sale, for the applicant had the opportunity, and did in fact present his objections to the confirmation, and it did not appear that the result would be advantageous.—Painter v. Union Trust Co., 246 Fed., 240. Decided December 4, 1917.

Injuries to Car Repairer

A train crew moved railroad cars to and from the yard of an oil company; the oil company exercised no control over the crew, except to instruct the conductor when the train entered the yard where to place incoming cars. In an action for the death of a car repairer in the employ of the oil company working on outgoing cars the Connecticut Supreme Court of Error holds that the crew did not become the servants of the oil company, but remained the servants of the railroad company. When the conductor of such train crew was given the list of locations of incoming cars and

the list of outgoing cars, he had a right to assume that he could move such cars in the usual course, and though charged with knowledge that repairs were made on cars on any of the oil company's tracks, the crew were entitled to believe that no repairs were then in progress on the cars on the tracks specified in the list, and, in the absence of notice that an employee was working on any of the cars, were under no duty to look under the cars, and were not negligent in moving them in the usual way.—Campbell v. N. Y., N. H. & H., 102 Atl., 597. Decided Dec. 15.

Workmen's Compensation—Roundhouse Accident

A fireman ran from J. to G. and return, reaching G. at 9:40 a. m. and leaving on the return at 4:10 p. m. On arrival at G. engines were taken in charge by the roundhouse crew, but the firemen while at G. were subject to call and as they left the premises were expected to leave information as to where they could be reached. They were also expected to be ready to take the engine one hour before leaving time, and a rule required them to see that the engine was properly equipped with the necessary tools. There was evidence that there was no set time for performing this duty and some slight evidence of a custom of the firemen to make small repairs. About one o'clock on the day of his death, the fireman in question, after returning from his dinner, put on his working clothes and went to the engine in the roundhouse. About half-past two his dead body was found on the floor of the roundhouse beside the engine and his hands and face were greasy. The Michigan Supreme Court held that the evidence warranted an award by the Industrial Accident Board on the theory that he was on duty when he sustained the fatal injury.—Meyers v. Michigan Central (Mich.), 165 N. W., 703. Decided December 3, 1917.

Attempting to Board Train on Off Side

At a station near a large factory where hundreds of workmen took an afternoon train, one of these, intending to board a six-car train, took his stand with others on the side of the track opposite the station platform, and between the main track and three freight cars. As the train drew in, others between the tracks attempted to board it, and one, swinging out, knocked down others, and finally the one first mentioned, who was fatally injured. The New Jersey Court of Errors and Appeals, in an action for his death, holds that there should have been a nonsuit, or a direction of verdict, for the defendant. There was nothing to show that the railroad ought to have anticipated, not only that intending passengers would place themselves in the narrow and dangerous space between the main track and the freight cars—a thing that had not happened before—but that one of them would miss his hold and be the immediate cause of injury to others. And if this were a contingency to be anticipated, it was at least as obvious to the deceased as to the company, and in that case the deceased assumed the risk of injury. If it were conceded for the sake of argument that the men were justified by custom in standing on the off side of the main track, there was ample room at either end of the three freight cars to receive the overflow from the platform. The only reasonable inference was that they wished to be first aboard, and endangered their lives and limbs to accomplish that end.—Kelleberg v. Raritan River (N. J.), 102 Atl., 350. Decided November 19, 1917.

Relief Fund Sustained

The Pennsylvania Supreme Court holds that a regulation of a railroad relief association that should a member or his legal representative bring suit against the railroad for damages for injury or death, payment of benefits from the fund on account thereof should not be made until such suit should be dismissed, and that any judgment in the suit should preclude any claim on the fund, and should operate as a release in satisfaction of all claims against the company, was valid and was a good defense to a widow's action of assumpsit on the certificate after she had recovered a judgment in a suit against the railroad for the death of her husband, which had been fully paid.

Section 5 of the Act of Congress of 1908, relating to injuries in interstate commerce, and providing that any contract or regulation intended to enable any common carrier to exempt itself from any liability created by the act should to that extent be void, does not intend that there should be both a payment of benefits from a railroad association fund and a recovery of damages for the injury, at least in so far as payments for both are to be made by the same defendant, in view of the provisions of the act that in an action for damages against a common carrier it may set off any sum paid by it to any relief benefit that may have been paid to the injured employee.—Gitkin v. Pennsylvania (Pa.) 102 Atl. 506. Decided June 30, 1917.

Railroad Reorganization

The federal district court for the Eastern District of Missouri, in proceedings for the appointment of an additional receiver for the M. K. & T. makes the following rulings: The fact that a receiver of a railroad has expressed his views to those undertaking to formulate a plan of reorganization was not sufficient ground for appointing an additional receiver, where he had not exceeded the limitations or proprieties of his position, or intended to impress his views on those engaged on the plan of reorganization, and had done little more than give his opinion when it was sought, especially where those at work on the plan of reorganization stated that its terms were not based on anything the receiver had said, and the opinions expressed by him related to future conditions about which skilled and competent men might widely differ.

The court will not approve a plan of reorganization of a railroad having no adequate provision for future capital requirements or in which the financing is so close to probabilities that earnings are likely to be absorbed in a lean year or a succession of them by fixed charges, though to avoid such a plan it is necessary to make the interest on junior securities contingent rather than fixed, especially as the public has an interest in every railroad reorganization accomplished by foreclosure; and in practice, when the margin between net income and fixed charges becomes small or disappears under adverse conditions, the insistent demands of contract obligations are always met at the expense of those of a more general, less definite, character.—Central Trust Co. v. M. K. & T., 246 Fed. 154. Decided October 13, 1917.

Keeping Vestibule Doors Fastened

In an action for damages for the death of a passenger, it appeared that he was missed from the train soon after it left Kirksville, Mo., north bound, by his daughter-in-law. Next morning his body was found on the track half a mile south of Kirksville. The train, when it passed that spot, was traveling at about 40 miles an hour. It consisted of two sleeping and one chair cars, all vestibule cars. The deceased had been sitting in the chair car, which was in front. In an action for his death the plaintiff's theory was that the deceased fell from the rear sleeper; that knowing the train was a vestibule train he walked to the rear, for some purpose not known, and on stepping on the rear platform found the gate open, fell through, and met his death. The railroad's theory of the case was that the deceased left the train at Kirksville and walked back half a mile down the track and was waylaid and killed. There was no evidence of robbery. The specific negligence charged was failure to keep the openings to the train securely closed and fastened. The railroad introduced evidence tending to show that the rear gate was up and securely fastened at the time. This was sworn to by the conductor and brakeman. The Kansas City Court of Appeals held that the questions whether the railroad negligently left the rear gate open and whether the passenger fell through the open gate were for the jury. The jury found for the plaintiff, but a judgment in her favor was reversed because of an erroneous instruction declaring that it was the railroad's duty to keep both the door and the gate fastened. It was held that, while a passenger on a vestibule train is privileged to go backward and forward through the train, vestibule doors being maintained for his protection, if the railroad keeps the gate on the platform of the rear coach securely fastened it is not bound to keep the door of that coach fastened. By the instruction given, the jury might have found for the plaintiff by reason of the fact that the rear door of the rear car was not locked, even though it found the rear gate was fastened.—Daly v. Pryor (Mo.), 198 S. W., 91. Decided November 5, 1917.

Equipment and Supplies

Locomotives

Specifications have recently been determined on orders received by the American Locomotive Company some months ago for the following locomotives:

LONG ISLAND.—4 eight-wheel switching locomotives weighing 203,000 lb.

PORTLAND TERMINAL RAILROAD.—2 six-wheel switching locomotives weighing 166,000 lb.

DELAWARE & HUDSON.—20 Consolidation locomotives weighing 295,000 lb.

CENTRAL VERMONT.—5 Mikado locomotives weighing 276,000 lb.

DELAWARE, LACKAWANNA & WESTERN.—15 Mikado locomotives weighing 321,000 lb.

The first, third and fifth items have been previously reported in the *Railway Age*. Every one of the locomotives in the above list will be equipped with a superheater.

Freight Cars

THE ATLANTIC COAST LINE is reported as having ordered 1,000 40-ton steel underframe ventilator cars from the Standard Steel Car Company.

RUSSIAN GOVERNMENT.—The American Car & Foundry Company has been informed by the Russian Commission to postpone indefinitely the construction of its order for 6,500 1,200 pood four-wheel box cars.

Signaling

THE CINCINNATI, NEW ORLEANS & TEXAS PACIFIC (Southern Railway System) has ordered from the General Railway Signal Company material for an automatic block signal installation between Moreland, Ky., and South Fork, 10 miles, and between Helenwood, Tenn., and Lancing, 26 miles.

THE GREAT NORTHERN is about to make automatic block signal installations between Stryker, Mont., and Rexford, 31 miles, and between Long Lake, Minn., and Delano, 11 miles. These installations will require 75 single arm, upper quadrant, 3-position, top-of-mast, Model 2A signals. The material will be furnished by the General Railway Signal Company and installation will be made by the railroad company's forces.

THE COAL BURNED BY STEAM VESSELS on the oceans aggregates in normal times about $250,000,000 a year in value out of a total of nearly $700,000,000 worth passing out of the coal producing countries of the world, according to a bulletin of the National City Bank of New York.

RAILROAD INVESTMENTS OF FRANCE.—In 1923 France will turn over to the Spanish nation all the leading railroads in Spain, which the Republic built and administered under a 99-year lease. It is interesting to note that the roads have cost France more than was expected, and some of the most expensive tunneling in the world was done in northern Spain, where in some sections as many as 20 tunnels within a few miles had to be excavated through the mountains. Many of the lines are antiquated, single track affairs. French investments in Russian railroads have been tragic. For instance, it is estimated that France advanced $800,000,000 to Russia to construct strategical railroads, particularly in connection with troop moving. Not a dollar of this money, apparently, was spent in railroad building, and it was this lack of transportation which in part led to the military downfall of Russia. Legislative tangles and lack of imperial ukases prevented the French cash from being utilized for what it was intended.—*Wall Street Journal.*

Supply Trade News

A. E. Crone has been elected vice-president and general manager of the Buffalo Brake Beam Company, New York, effective February 1.

The Barco Manufacturing Company, successors to the Barco Brass & Joint Company, Chicago, has recently appointed the Holden Company, Ltd., of Montreal, as its exclusive Canadian agents.

Ben D. Christian and **D. B. Graze** have been appointed representatives at the Cleveland office of the Crocker-Wheeler Company of Ampere, N. J., succeeding **Howard Dingle** and **W. W. Clark.** Effective February 1.

John F. Gilchrist, treasurer of the Federal Sign Company, has been elected president, succeeding **J. H. Goehst,** deceased. **James Gilchrist,** at present secretary, has been elected secretary and treasurer and other officers have been re-elected.

Arrangements have recently been completed whereby the business of both the Goldschmidt Detinning Company and the Goldschmidt Thermit Company will hereafter be conducted by the Metal & Thermit Corporation, with general offices at 120 Broadway, New York City.

The Walter A. Zelnicker Supply Company, St. Louis, has established permanent offices at Minneapolis, Minn., 627 Plymouth Bldg., to serve the north central and Canadian trade. **Richard K. Papin,** formerly St. Louis and Southwestern representative of the Davenport Locomotive Works and for ten years manager of the Zelnicker Company's equipment department, is in charge.

The twenty-fifth anniversary of the organization of the Chicago Railway Equipment Company was celebrated by a dinner given at the Union League Club in Chicago on Tuesday night. The guests included a large number of leading railway manufacturers and other persons interested in the railway supply industry. **E. B. Leigh,** who has been president of the company throughout its successful career, presided and short addresses were made by officers of the company and a number of the guests.

H. S. Cooper, vice-president of the Independent Pneumatic Tool Company, manufacturers of pneumatic tools and electric drills, who for many years was the manager of the company's eastern branch in New York city, effective February 1, assumed the duties of general sales manager as well as those of vice-president and will have his headquarters at the general offices of the company, Thor building, Chicago. **R. T. Scott,** the former Pittsburgh branch office manager, has been promoted to the office of eastern manager with headquarters at 170 Broadway, New York. **H. F. Finney,** who formerly traveled the Chicago and St. Louis territories, has been placed in charge of the company's branch office at Pittsburgh, Pa.

Trade Publications

STANDARDIZED BUILDINGS.—The Trussed Concrete Steel Company, Youngstown, Ohio, has issued a 24 page booklet describing its standardized structures which it carries in stock for quick construction. The book gives in detail the nature of the construction of these buildings and contains a number of illustrations of them in service.

"MY DEAR JIM."—This is the title of a small booklet issued by the Carnegie Steel Company in the form of a letter from a retired steel man to a friend in Medicine Hat. The letter tells in entertaining language of the growth of the Carnegie Steel Company during the last 20 or more years, both as to the extent of its plants and the variety of its products. Following the general outline of the latest Carnegie Shape book, detailed information is given concerning the various sections rolled for structural and industrial purposes, giving the trade reasons for introducing the newer sections.

Financial and Construction

Railway Financial News

BUFFALO & SUSQUEHANNA.—A. A. Jackson, vice-president of the Girard Trust Company of Philadelphia, has been elected a director to succeed Edward B. Smith, deceased.

CHICAGO, MILWAUKEE & ST. PAUL.—The directors, at the regular meeting on January 31, decided to defer action on the semi-annual dividends on both the preferred and the common stocks. H. E. Byram, president, said that the action of the board did not mean that the dividend has been passed, but he would not say whether or not the dividend question would be taken up at a later meeting of the directors, when a more definite knowledge of the terms under which the Government will take over the roads will be possible. He intimated, however, that if the present program for Government control goes through the St. Paul will receive enough to meet its dividends requirements.

DENVER & RIO GRANDE.—Default has been made in the payment of the interest due February 1 on the first and refunding mortgage 5 per cent gold bonds issued August 1, 1908. The semi-annual payment amounts to $825,975.

See also editorial comments elsewhere in this issue.

HASTINGS & NORTHWESTERN.—See Union Pacific.

NEW MEXICO CENTRAL.—This company has increased its capital stock from $500,000 to $2,500,000.

PHILADELPHIA & WESTERN.—W. Barklie Henry, Edward F. Beale and Charles H. Bean have been elected directors to fill vacancies caused by the death of Edward B. Smith and the resignation of George R. Sheldon and G. Trowbridge Hollister, of New York.

ST. LOUIS & SAN FRANCISCO.—The Federal District Court at St. Louis on January 29, formally dissolved the receivership of this company. The court reserved the right to pass on any claims that hereafter may be made against the company as constituted when it went into receivership.

UNION PACIFIC.—The Hastings & Northwestern which operates that portion of the Union Pacific line from Hastings, Neb., to Kearney, 41 miles, has been taken over by the Union Pacific, becoming a part of the system.

WESTERN PACIFIC.—The Western Pacific Railroad Corporation on February 5 declared an initial dividend of 6 per cent on the $27,500,000 preferred stock, due in quarterly installments beginning February 20. The second payment of 1½ per cent will be made April 1 and the others of equal amount on July 1 and October 1. The corporation is holding company for the Western Pacific Railroad, owning all of the latter's $75,000,000 stock. On this stock a dividend of approximately $2,000,000 was paid last December and from this return into the corporation's treasury the preferred stock dividend will be paid.

Railway Construction

ESSEX TERMINAL RAILWAY.—This company is building a steel bridge with concrete foundations, 75 ft. long, over Turkey creek at Ojibway, Ont.

FINANCES OF DUTCH RAILWAYS.—The gross receipts of the State, Holland, and Netherlands Central Railway companies during the first six months of 1916 were 45,029,014 florins ($18,101,664). Fares were increased 20 per cent beginning January 1, 1917, but the gross receipts in the first six months of 1917 were increased in much less proportion, being 48,135,614 florins ($19,350,517). The expenses rose in much greater proportion, from 42,161,235 florins ($16,948,817) during the first six months of 1916 to 48,340,585 florins ($19,432,915) in the corresponding period of 1917. Thus the business shows an actual loss in 1917.—*Commerce Report.*

Railway Officers

Executive, Financial, Legal and Accounting

J. C. Potter has been appointed auditor and treasurer of the Meridian & Memphis, with headquarters at Meridian, Miss.

Ralph M. Shaw, assistant general counsel of the Chcago Great Western, with headquarters at Chicago, has been appointed general counsel, succeeding **J. B. Payne,** effective January 28.

H. M. Ristley, head of the transfer department of the Illinois Central, at New York, has been appointed assistant treasurer with headquarters at New York, succeeding **R. E. Connolly,** promoted.

Osgood H. Dowell, assistant counsel of the Eastern Railroad Association, Washington, D. C., has resigned to become a member of the patent law firm of Emery, Booth, Janney & Varney, of New York, Boston and Chicago. Mr. Dowell will be located at the Chicago office.

C. M. Kittle, senior vice-president of the Illinois Central, has been placed in executive charge of that line in the absence of **C. H. Markham,** president who has been appointed assistant to the director-general of railroads in charge of southeastern territory with headquarters at Atlanta, Ga.

J. C. Sweeney, who has been appointed general solicitor of the New York, New Haven & Hartford, with headquarters at New Haven, Conn., as has already been announced in these columns, was born on November 30, 1874, at New Haven, and graduated from Yale University in the class of 1896. He was in private practice at Providence, R. I. until 1904, when he entered the service of the New York, New Haven & Hartford as trial attorney for the state of Rhode Island, with headquarters at Providence, remaining in that position until 1914, also serving as trial attorney for the Rhode Island Company, which operated the street railways controlled by the New Haven. In 1914 he was appointed general attorney of the New Haven with headquarters at New Haven, Conn., and on February 1, was appointed general solicitor of the same road as above noted.

J. C. Sweeney

Thomas Fletcher Smith, land and tax agent of the Central of Georgia, with office at Savannah, Ga., has been appointed assistant to vice-president and general manager, vice **Charles Molony,** resigned to accept service with another company, and **Edwin Burke McCuen** has been appointed land and tax agent vice Mr. Smith.

R. B. Walker, auditor of disbursements, of the Seaboard Air Line, with headquarters at Portsmouth, Va., having resigned to accept service with another company, **H. W. MacKenzie,** controller, announces the following appointments and changes in title of the officers of the accounting department, effective February 1: **T. W. Mathews,** assistant controller; **L. R. Powell, Jr.,** assistant to the controller; **B. B. McCaa,** auditor freight accounts; **V. T. Boatwright,** assistant auditor freight accounts; **S. D. Locke, Jr.,** auditor passenger accounts; **E. P. Ball,** auditor station accounts; **J. S. Hamilton,** auditor disbursements, and **L. L. Knight,** assistant auditor disbursements.

R. E. Connolly, assistant treasurer of the Illinois Central, has been appointed treasurer, with headquarters at New York, succeeding **A. J. Wykes,** deceased. Mr. Connolly was born on August 11, 1884, in New York City and was educated at New York University. He began railway work in August, 1902, as a clerk in the executive office of the Illinois Central and in 1906 was appointed transfer agent. On October 31, 1916, he was appointed assistant treasurer, with headquarters at New York, which position he held at the time of his recent appointment as treasurer of the same road as above noted.

N. W. Smith whose appointment as general attorney of the New York, New Haven & Hartford with office at New Haven, Conn., has already been announced in these columns, was born on November 18, 1873, at Providence, R. I. He was educated in the public schools of his native town also at Bellows Falls, Vt., and in 1896, graduated from Yale College and two years later from the New York Law School. He was admitted to the bar in New York in 1898 and in Rhode Island the following year. In 1899 he became a junior partner in the firm of Edwards & Angell, Providence, and in 1904, was appointed assistant attorney for Rhode Island of the New York, New Haven & Hartford. In 1907, he was appointed attorney for Rhode Island and in 1914, became Rhode Island counsel, which position he held at the time of his recent appointment as general attorney of the same road as above noted. He also served as general counsel of the Rhode Island Company operating the street railways from about the time the New Haven Company acquired control of that company until it was separated in 1914 from the New Haven Company by the decree in the dissolution suit.

N. W. Smith

Operating

Henry D. Pollard has been appointed assistant general manager of the Central of Georgia with headquarters at Savannah, Ga.

J. M. Mitchell has been appointed superintendent of the Nezperce & Idaho, with office at Nezperce, Idaho, in charge of traffic and operation, succeeding **C. A. Hawkins,** resigned, effective February 1.

A. R. MacGowan, district superintendent of the Canadian Government Railways, at Edmundston, N. B., has been appointed superintendent of the Pennsylvania division of the Delaware & Hudson, with office at Carbondale, Pa., vice **C. A. Morgan.**

J. A. MacDonald, superintendent of the LaCrosse division of the Chicago, Milwaukee & St. Paul with office at Milwaukee, Wis., has been appointed superintendent of the Prairie-du Chien and Mineral-Point divisions, succeeding **L. T. Johnston** who succeeded **Mr. MacDonald.**

W. F. Eckert, superintendent of the Reading division of the Philadelphia & Reading, with office at Reading, Pa., has been appointed superintendent of the Wilmington and Columbia division, with office at Reading, succeeding **I. T. Tyson** who has been appointed superintendent of the Reading division, with office at Reading.

J. T. Gilmore, roadmaster of the Chicago, Burlington & Quincy, with headquarters at Greybull, Wyo., has been appointed trainmaster and roadmaster of the McCook division in charge of the line from Orleans, Neb., to St. Francis, Kan., and from Republican, Neb., to Oberlin, Kan., with headquarters at Orleans, Neb., succeeding **W. G. Dungan,** transferred.

J. Munday, general superintendent of the Rock Island Southern, with headquarters at Rock Island, Ill., was appointed superintendent of the middle division of the St. Louis Southwestern, with headquarters at Mt. Pleasant, Tex., succeeding **E. Richards,** who has been appointed train rules examiner and safety inspector, with office also at Mt. Pleasant, effective February 1.

J. W. Fitzgerald, superintendent of the Tucson division of the Southern Pacific with office at Tucson, Ariz., has been appointed superintendent of the Shasta division, with headquarters at Dunsmuir, Cal., vice **J. W. Metcalf,** resigned, and **W. Wilson,** superintendent, with office at Portland, Ore., has been appointed superintendent of the Tucson division, with headquarters at Tucson, vice Mr. Fitzgerald.

A. L. Haldeman, division superintendent of the Chicago, Rock Island & Pacific with headquarters at Estherville, Iowa, has been transferred to the Minnesota division with headquarters at Manly, Iowa, succeeding **A. E. Wallace,** resigned to go with another company. **C. E. Green,** trainmaster at Bureau, Ill., has been promoted to superintendent of the Dakota division with headquarters at Estherville, succeeding Mr. Haldeman. **O. O. Hawk,** trainmaster at Eldon, Iowa, has been transferred to Bureau, succeeding Mr. Green.

Patrick Minehan, trainmaster on the Mahoning division of the Erie at Youngstown, Ohio, has been appointed assistant superintendent, with office at Youngstown, vice **John M. Condon,** promoted. **Daniel J. Madden** has been appointed trainmaster, with office at Youngstown, vice **Mr. Minehan. Thomas Fitzgerald** has been appointed terminal trainmaster, with office at Cleveland. **Ezra Chadwick,** chief despatcher, has been appointed trainmaster with office at Cleveland, and **Rolla A. Smith** has been appointed chief despatcher, vice **Mr. Chadwick.**

Victor B. Fisher, trainmaster of the Philadelphia & Reading, with office at Tamaqua, Pa., has been appointed superintendent of the Shamokin division with headquarters at Tamaqua, vice **F. J. Hagner,** assigned to other duties. Mr. Fisher was born on July 8, 1867 at Allenwood, Pa., and received a high school education. He began railway work in the spring of 1882, as a messenger on the Philadelphia & Reading and in the fall of the same year became telegraph operator. In the fall of 1885, he was appointed train despatcher and in May, 1890, went to the New York Central as yardmaster. The following December he returned to the service of the Philadelphia & Reading as train despatcher and in September, 1897, was appointed assistant trainmaster with office at Tamaqua. In February, 1913, he was promoted to trainmaster which position he held at the time of his recent appointment as superintendent of the Shamokin division of the same road as above noted.

V. B. Fisher

M. M. Sisson, whose appointment as superintendent of car service of the Detroit, Toledo & Ironton with office at Springfield, Ohio, was mentioned in these columns January 25, entered railway service in December, 1901, as a telegraph operator on the Missouri division of the Atchison, Topeka & Santa Fe. He remained with the Santa Fe until December, 1902, following which he was employed in similar work on the Chicago & North Western. From March, 1904, to January,

1906, he was storekeeper for the Victor Fuel Company of Denver, Colo.; on the latter date he returned to the Santa Fe on which line he was an operator and trick despatcher at La Junta, Colo., until November 30, 1908. From December 15, 1908, to February 18, 1909, he was a trick despatcher with the Union Pacific at Evanston, Wyo.; following which he was trick despatcher, night chief despatcher and chief despatcher with the Santa Fe at Amarillo, Tex., La Junta, Colo., Winslow, Ariz. and Pueblo, Colo. On October 10, 1914, he was appointed chief despatcher and trainmaster for the Detroit, Toledo & Ironton, which position he held until the time of his appointment as noted above.

C. H. Buford, trainmaster of the Chicago, Milwaukee & St. Paul, with headquarters at Sioux City, Iowa, has been transferred to the La Crosse division, with headquarters at Milwaukee, Wis., succeeding **B. H. McManey,** who has been transferred to the Northern division, with headquarters at Milwaukee. **R. E. Sizer** has been appointed trainmaster of the Prairie du Chien and Mineral Point divisions, with headquarters at Milwaukee, Wis. **J. E. Hills** has been appointed trainmaster of the Twin City terminals, with headquarters at Minneapolis, Minn. The above changes were effective February 1.

Traffic

H. A. Fidler, general freight agent of the Detroit, Toledo & Ironton at Detroit, Mich., has been appointed traffic manager with same headquarters. Mr. Fidler was born in Ardensville, Pa., on January 12, 1874. He entered railway service on January 2, 1889, and since that date has been consecutively to April 1, 1893, rate and bill clerk of the Cleveland, Cincinnati, Chicago & St. Louis at Danville, Ill.; from April 1, 1893, to August 1, 1895, yard clerk at the same point; from August 15 to November 24, 1895, night clerk in the freight office at Springfield, Ohio; from November 24 to December 26, 1895, receiving clerk in the local freight office of the Ohio Southern at Springfield; from December 26, 1895, to April 1, 1899, rate clerk in the same office; from April 1 to November 17, 1899, claim clerk in the general freight department; and from November 17, 1899, to August 1, 1900, chief clerk in the same department. He was then assistant general freight and passenger agent until October 1, 1900, and later general freight and passenger agent for the same road to June, 1901. He subsequently served as division freight agent of the Detroit, Toledo & Ironton at Ironton, Ohio, and from August 17, 1913, to August 1, 1914, he was traffic manager of the Big Sandy & Kentucky River at Ashland, Kentucky. From the latter date to May 1, 1915, he was assistant general freight agent of the Detroit, Toledo & Ironton at Ironton, Ohio. From May 1, 1915, to March 1, 1916, he was assistant general freight agent at Springfield, Ohio and from March 1, 1916, to January 1, 1918, he was general freight agent at Detroit, Mich., which position he held at the time of his appointment as noted above. He succeeds **F. H. Osborn,** vice-president in charge of traffic and secretary, who has enlisted in government service.

H. A. Fidler

The authority of **T. D. Geoghegan,** traffic manager of the Gulf, Mobile & Northern, with headquarters at Mobile, Ala., has been extended over the Meridian & Memphis.

W. D. Braddock, advertising agent of the Chicago, Rock Island & Pacific, with headquarters at Little Rock, Ark., was appointed general advertising manager at Chicago, succeeding **H. E. Erickson,** who has resigned to become advertising manager of Morris & Co., with headquarters at Chicago, effective February 1.

W. H. Ward, whose appointment as general freight agent of the Indiana Harbor Belt, with headquarters at Chicago, was announced in the *Railway Age* of February 1, first entered railway service in the local freight office of the Union Pacific at Omaha, Neb., in 1890. Three years later he went to Chicago to enter the fast freight line department of the Chicago, Burlington & Quincy. In 1896 he entered the employ of the Indiana, Illinois & Iowa, later taken over by the New York Central, with which road he was chief clerk in the traffic department and assistant general freight agent. Approximately 12 years ago he was transferred to the Indiana Harbor Belt, by which company he has been employed ever since. He was chief of the tariff bureau at Chicago during most of that period and at the time of his promotion to general freight agent, succeeding **J. W. Bingham,** resigned.

W. H. Ward

H. D. Landry, assistant general freight agent of the St. Louis Southwestern, with headquarters at St. Louis, Mo., will have charge of the industrial department in addition to his other duties, effective February 1.

C. E. Veatch, acting general freight and passenger agent of the Missouri & North Arkansas with headquarters at Harrison, Ark., has been appointed general freight and passenger agent with the same headquarters.

J. A. Middleton, formerly freight traffic manager of the St. Louis & San Francisco, is in charge of oil traffic for the Fuel Administration, instead of the Food Administration, as inadvertently stated in last week's issue, page 286.

F. A. Brown, traveling agent of the Chicago, St. Paul, Minneapolis & Omaha, with headquarters at Kansas City, Mo., was appointed general agent of the passenger department, with headquarters at St. Paul, Minn., succeeding **H. H. Lankester,** resigned, effective February 1.

Oscar Plunket, traveling freight agent of the Wabash, with office at Birmingham, Ala., has been promoted to general agent at Birmingham, succeeding **E. H. Blair,** resigned to engage in other business. **Lee Pescia,** commercial agent, with office at Memphis, Tenn., having resigned to engage in other business, that agency will be temporarily in charge of **G. W. Terry,** traveling freight agent.

J. H. Cherry, assistant general freight agent of the Illinois Central at Chicago, has been appointed regional director for the Illinois State Food Administration. Mr. Cherry will have charge of a bureau which will facilitate the movement of food products on the roads of the state with a view to conserving their full edible value. **F. H. Law,** assistant general freight agent at St. Louis, has been transferred to Chicago to succeed Mr. Cherry.

Engineering and Rolling Stock

E. M. Lake has been appointed master mechanic of the Meridian & Memphis, with office at Meridian, Miss.

K. G. Williams, assistant engineer of the Chicago, Rock Island & Pacific, with office at Memphis, Tenn., has been appointed resident engineer of the Union Railway at Memphis, he will also continue to serve with the Rock Island, the Ar-

kansas & Memphis Railway Bridge & Terminal Company and the American Bauxite Company.

M. F. Longwell, resident engineer of the Union Railway at Memphis, Tenn., has been appointed engineer maintenance of way of the Wabash, with headquarters at Montpelier, Ohio.

A. A. Matthews was appointed chief engineer of the St. Louis Southwestern of Texas, with office at Tyler, Tex., succeeding **W. T. Eaton,** assigned to other duties, effective January 28.

R. D. Quickel, fuel agent of the Southern Railway, lines west, with office at Cincinnati, Ohio, having entered military service, **N. C. Kieffer** has been appointed fuel agent, with office at Cincinnati.

C. H. Montague, master mechanic of the Quincy, Omaha & Kansas City and the Iowa & St. Louis, with office at Milan, Mo., having resigned, **J. C. Woods** has been appointed acting master mechanic, with office at Milan.

N. F. Thompson, district engineer of the Middle district of the New York Central, with office at Albany, N. Y. has been appointed district engineer of the Western district, with office at Buffalo, succeeding **F. E. Paradis,** resigned. **B. C. Martin,** district engineer of the Hudson River Connecting Railroad, with office at Castleton, has been appointed also district engineer of the Middle district, to succeed Mr. Thompson.

W. O. Galbreath, whose appointment as chief engineer of the Missouri, Oklahoma & Gulf, with office at Muskogee, Okla., was announced in these columns on January 25, was born in Porter County, Ind. He graduated from Kansas University in 1898 and entered railway service on the Mexican Central in 1899 in Mexico. He was later employed on the Mexican National and the National Railways of Mexico on location, construction and maintenance work. In 1912 he left the latter company to become engineer of maintenance of the Missouri & North Arkansas. He resigned this position in 1916 to go with the Chicago Great Western, remaining with that company until he received the appointment, as noted above.

Special Officers

James F. Holden, vice-president in charge of traffic of the Kansas City Southern, has been appointed by Director-General McAdoo, an assistant to Edward Chambers, traffic advisor of the director general. Mr. Holden will have general supervision over the transportation of the supplies and materials for the Shipping Board and relations between the railroads and the Shipping Board, as was announced in the *Railway Age* of February 1, page 257. Mr. Holden was born in 1861, at Prince Albert, Ont. He began railway work in 1877 and served consecutively to 1880, as clerk to the superintendent and traveling auditor of the Whitby, Port Perry & Lindsay, now a part of the Grand Trunk; and from 1880 to 1883 as chief clerk in the traffic manager's office of the Midland Railway of Canada. The next year he was appointed local freight agent of the same road at Toronto. From 1885 to 1886, he was traveling freight agent of the Canadian Pacific, at Toronto; then for three years was in charge of agents' accounts, in the accounting department of the St. Louis-San Francisco, at St. Louis, Mo., and from 1889, to 1891, he was chief rate clerk in the general freight office of the same road. In November, 1891, he went to the Choctaw, Oklahoma & Gulf and served as auditor and traffic manager until May 1898 and then to July, 1901, as traffic manager. He was vice-president of the same road from July, 1901 to April, 1902, and in February, 1903, was appointed freight traffic manager of its successor, the Chicago, Rock Island & Pacific. In January 1906, he was elected vice-president and general manager of the Midland Valley and since February, 1910, has served as vice-president of the Kansas City Southern, with office at Kansas City, Mo.

J. F. Holden

Railway Officers in Military Service

Paul M. La Bach, assistant engineer of the Chicago, Rock Island & Pacific, has been commissioned a major in the Engineer Reserve Corps and has been assigned to staff duty in France. Mr. La Bach was recently commissioned as an ensign in the Fleet Naval Reserve but resigned to accept the army commission. He served as an ensign in the Spanish-American war.

Obituary

Charles C. Rosenberg, for the past 11 years secretary and treasurer of the Railway Signal Association, died at his home in Bethlehem, Pa., on February 2, at the age of 63. He had been in poor health for about five years but he was of such cheerful and courageous disposition that his friends in the association, though they met him regularly at meetings, saw little or nothing in his conversation to indicate his illness. He had been in a critical condition since he was stricken with kidney disease, while away from home on January 12.

C. C. Rosenberg

Mr. Rosenberg was born at West Portal, N. J., on February 5, 1855, and left school at the age of 14 to become apprentice to a carpenter. He entered railway service in 1875 on the Lehigh Valley as a carpenter. Two years later he was made foreman, and in 1880 he was appointed supervisor of bridges and buildings. Railroad signaling was then in its infancy and the Lehigh Valley was one of the pioneers. Mr. Rosenberg kept his eyes and ears open and as the first signals, primitive in design, were put under his supervision he grew with the art; and in 1896 he was made signal engineer. Prior to this, however—1890—he had been superintendent of the cresoting plant of the company at Perth Amboy, where he stayed for two years. From 1892 to 1896 he was again supervisor of bridges and buildings, in the territory between Jersey City, N. J., and Mauch Chunk, Pa.; which included important docks at New York harbor. He was one of the earliest members of the Railway Signaling Club, now the Railway Signal Association, and his name is prominent in the proceedings throughout the life of the association. He was its vice-president in 1900 and its president in 1901 and 1902. He retired from railroad service in 1906, having been in the service of the Lehigh Valley continuously for 31 years; and in the same year he was chosen secretary of the Railway Signal Association. His popularity and efficiency as a secretary are everywhere attested.

Mr. Rosenberg is survived by a widow and three daughters, his only son having died a few years age. He was as popular locally as he was among his railroad acquaintances and was active in civic, religious and political affairs, but not as a politician. He was a member of the Rotary Club of Lehigh University, and although his education was gained, largely, in the hard school of railroad experience, he seemed to be entirely at home among the professors of the university.